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**UNITED STATES DEPARTMENT OF AGRICULTURE**  
**MISCELLANEOUS PUBLICATION No. 105**

WASHINGTON, D. C.

ISSUED MAY, 1931

**A GRAPHIC SUMMARY  
OF AMERICAN AGRICULTURE  
BASED LARGELY ON THE CENSUS**

COMPILED BY

**O. E. BAKER**

Senior Agricultural Economist  
Division of Land Economics, Bureau of Agricultural Economics



This publication is a revision and enlargement of A Graphic Summary of American Agriculture contained in the 1915 Yearbook of the Department of Agriculture, which was also issued as Yearbook Separate 681, and of a second contribution having the same title in the 1921 Yearbook, which was also issued as Yearbook Separate 878. The first edition was based largely on the 1910 census of agriculture, the second on the 1920 census; this revision portrays similarly the returns from the 1925 census, supplemented by a number of maps based on the annual estimates of the United States Department of Agriculture.

Extensive and significant shifts have occurred in the areas of crop and livestock production since the pre-war years, and even since the World War. Maps have, therefore, been included in this revision showing the increase and decrease in the principal crops and kinds of livestock between 1909 and 1924 (1910 and 1925 for livestock) and between 1919 and 1924 (1920 and 1925 for livestock), while several other maps show regional changes between 1924 (or 1925) and 1928 (or 1929). Still other maps show percentage changes since 1919 or 1920.

The serious agricultural situation that has developed since the World War suggests that greater attention be given than heretofore to presenting the more purely economic and social aspects of agriculture. Therefore the section devoted to such subjects in the 1921 edition has been enlarged and divided into a number of sections, and the cooperation of several workers in these fields has been obtained in the preparation of the maps and graphs as follows:

Cooperative marketing.....	R. H. Elsworth.
Number and size of farms.....	H. A. Turner.
Value of farm property.....	E. H. Wiecking.
Farm-mortgage debt.....	D. L. Wickens.
Farm taxation.....	Eric Englund.
Farm tenure.....	O. M. Johnson.
Farm labor.....	J. C. Folsom.
Farm population.....	C. J. Galpin.
Dairy products.....	T. R. Pirtle.

The clerical work was done mainly in the Division of Land Economics under the supervision of Nettie P. Bradshaw, who also prepared the index.

The graphic presentation was largely designed and drafted under the direction of R. G. Hainsworth, in charge of the graphic section of the bureau.



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### INTRODUCTION

The decade since the World War has been in many ways the most extraordinary period in American agriculture. For the first time in the Nation's history, the census of 1925 showed a decrease (since 1920) in crop acreage, in farm animals, in number of farms, and in farm population. Nevertheless, agricultural production increased more rapidly from 1922 to 1926, inclusive, than in any period since 1900, and probably since 1890, when the agricultural occupation of the prairies approached completion.

Four factors, some new, and some of greatly increased importance, help to account for this anomalous situation:

(1) Use of the automobile and tractor, which has caused a decline since the World War of over 7,000,000 in number of horses and mules, with resultant release of 20,000,000 to 25,000,000 acres of crops to feed other farm animals, an increase of probably 12 per cent or more.

(2) Increasing production of animal products per unit of feed consumed, notably of milk and pork. With reference to economy in crop and pasture land this factor appears to be of a similar magnitude to the use of the tractor and automobile.

(3) Shifts from the less productive toward the more productive crops per acre within several regions, notably from corn toward cotton in the South and from wheat toward corn in the western Corn Belt and northwestward.

(4) Shifts from the less productive toward the more productive animals per unit of feed consumed, principally from beef cattle toward dairy cattle and swine.

These factors have promoted extraordinary shifts in areas of crops and livestock production. The tractor and automobile have been important influences in extending grain production in the Great Plains area, with a notable decline in parts of the East, principally of

wheat; while the large quantities of cheap feed released for meat and milk animals by the decline in horses in the North and West has made competition in the South more difficult, especially in meat production. In the States south of the Potomac and Ohio Rivers there are only a little over half as many hogs as 10 years ago, and only three-fourths as many cattle. On the other hand, in Iowa, Kansas, and the States to the north and west, excluding the Pacific Coast States, the number of hogs has increased from 20 to 100 per cent. The geographic shifts in corn production have corresponded with the shifts in hog production.

Such rapid and profound shifts in agricultural production during years of peace are unprecedented in our national history, but changes in land values and farm population have been scarcely less striking. In most of the dominantly agricultural States, notably in the eastern Cotton Belt, the Corn Belt, and the spring-wheat region, the decline in farm real-estate values between 1920 and 1925 exceeded 25 per cent, and in many counties was more than 50 per cent; while in the industrial areas of southern New England, New Jersey, eastern New York and Pennsylvania, of western North Carolina, and of the Pacific coast, increases occurred in the value of farms, in some counties exceeding 50 per cent. The use of the automobile and the building of good roads has encouraged the development of vegetable, fruit, and poultry farms in these industrial areas, some of which are operated by factory workers and business men in their spare hours. Many such "amphibian" farmers, as they are sometimes called, produce enough products to meet the census definition of a farm, and thereby cause local increases in the figures of farm population. On the other hand, the tractor and associated machinery, together with other advances in agricultural technique, have made many farms on hilly or poor land remote from market as obsolete as the spinning wheel, and have indirectly caused declines in farm population and farm values in many parts of the United States that are serious.

The agricultural conquest of the continent appears to be completed, and urbanization of the population is proceeding at a rapid pace. The consequent decline in the birth rate indicates a stationary population about a third greater than at present within a few decades. However, it seems probable that the present farm land of the United States will increase very slowly, if at all, for the following reasons:

- (1) The decline in number of horses will continue for several years at least, releasing feed for meat and milk animals, since there are less than half enough colts on farms to replace the work stock that die or are disabled annually.

- (2) The increasing production of milk per unit of feed consumed, and probably also of meat, will continue, doubtless, for there is still much scrub stock on farms and poor methods of feeding persist.

- (3) It will be more profitable to put into crops some of the 15,000,000 or 20,000,000 acres of crop land lying idle and of the 100,000,000 acres of plowable pasture in farms than to clear, irrigate, or drain much new land.

- (4) Acre yields of the crops in northwestern Europe, owing mostly to the use of fertilizers, are 50 per cent higher than in those portions of the United States having similar climatic and soil conditions, and a rise in the price of farm products equal to that necessary to justify the clearing or reclamation of a large amount of land would greatly encourage the use of fertilizers in the United States.

## PHYSICAL CONDITIONS

The physical conditions have been fundamental in determining the geography of American agriculture. These physical conditions have become more important with the increasing commercialization of agriculture. The constant improvement in transportation facilities and the keen competition of producers in different regions make the production of a crop or animal product sensitive even to the minute advantages or disadvantages which a district may possess, and compel shifts in crop production or in use of land to be made with an alacrity unknown in the precommercial period. The control of the physical conditions over agricultural development, instead of being mitigated by the progress of science, has been intensified and enforced.

These physical conditions may be classified into four groups as follows:

(1) Temperature, particularly duration of the frost-free season and temperatures during this period. (Figs. 3, 4, and 5.)

(2) Moisture, of which the seasonal distribution of precipitation (rain, snow, and hail) and the total annual amount are very important. (Figs. 6, 7, 8, 9, and 10.)

(3) Topography or lay of the land, particularly the degree and direction of the slope. (Fig. 2.)

(4) Soils, which are influenced greatly in their development by climate and the natural vegetation. (Figs. 11 and 12.)

The moisture and temperature conditions relate primarily to the atmosphere, the topographic and soil conditions primarily to the surface of the earth, or what is commonly called the land. Moisture and temperature conditions jointly constitute the climatic factors; likewise topographic and soil conditions may be said to constitute the edaphic factors. The climatic factors, in the extent and permanence of their characteristics, may be compared to genera in botanical classifications; while the edaphic factors of slope and soil, owing to the local variability and lesser permanence of their characteristics, may be compared to species. The climatic factors influence in particular the development of the general system of farming—dairying, cattle ranching, cotton growing, etc., whereas the edaphic factors more often determine the best utilization for a particular piece of land—whether it should be used for crops, pasture, or forest, and if suitable for crops, whether for wheat, potatoes, corn, etc.

These climatic and soil requirements of the crops are being altered by breeding cold or drought resistant varieties, and by the mechanization of agriculture, particularly along the arid margin of crop production. The more power that is associated with a man, and the greater the product per man, the drier the land he can profitably cultivate. As weather conditions vary from season to season, and as the price of the product varies also, and likewise the efficiency of farmers, the climatic boundary of a crop is never a precise line, but a zone commonly many miles in width. An edaphic boundary, on the other hand, is commonly sharp—sometimes only a few feet in width.



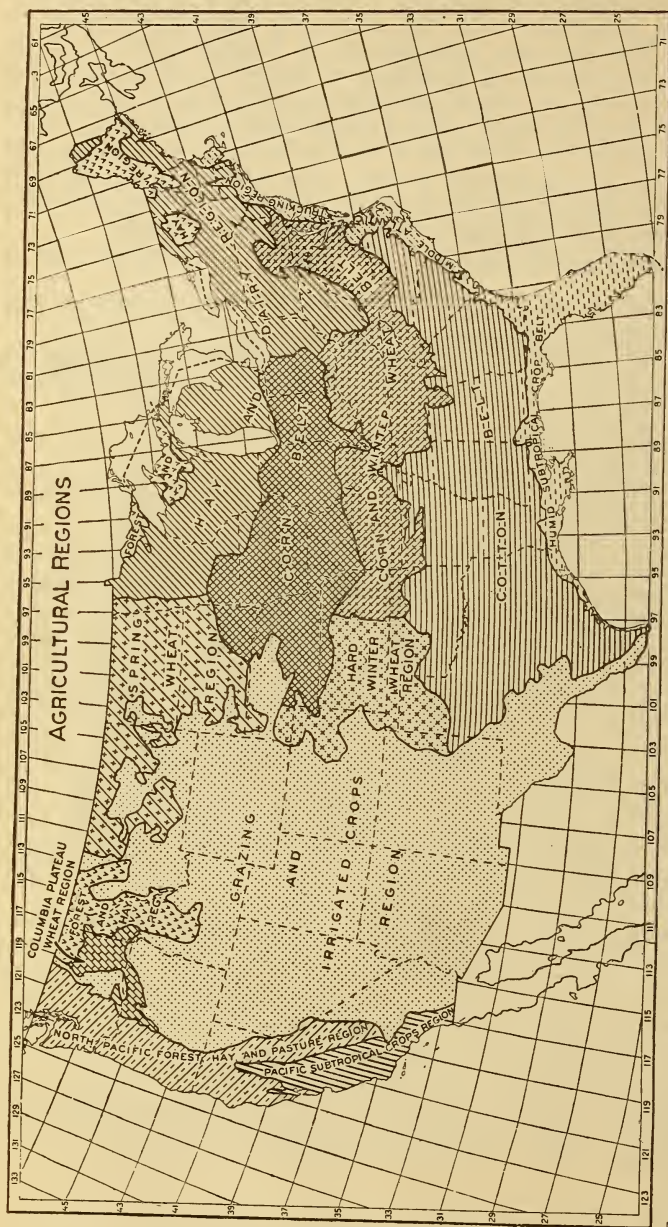


Figure 1.—The United States may be divided agriculturally into two parts, the East and the West, on the basis of the prevalent use of the land, whether for crops or for pastures. The dividing line approximates longitude 103°, except that it trends southeasterly in Texas and northwesterly in Montana. The East has a humid climate; the West an arid or semiarid climate, except in the north Pacific region, parts of the Columbia Plateau and at the higher altitudes in the mountains. The East is divided into eight areas (excluding the forest and hay region) on the basis of the dominance of a certain crop or kind of farming, which is the result largely of latitude and temperature conditions. The West is divided into four regions on the basis of the use of the land for grazing or crops, which is determined largely by altitude and rainfall.

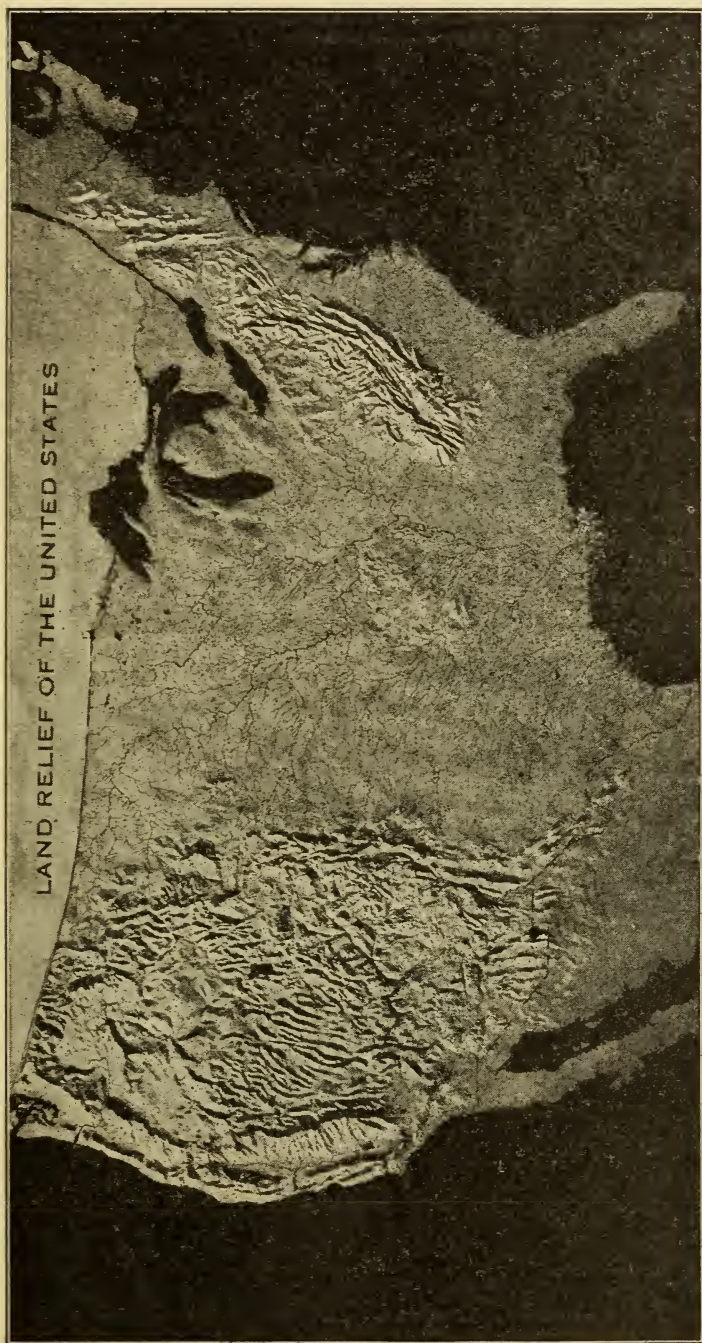


FIGURE 2.—This map shows the mountain areas of the United States in a generalized way. It is a photograph of a relief model of the United States supplied by the United States Geological Survey. The mountainous character of the West (except the Great Plains region) is clearly shown; but the map fails to show the high altitude of much of the West, particularly of the Rocky Mountain and arid intermountain plateau regions. Owing to the altitude, these regions have a much cooler climate than corresponding latitudes in the East. The vast expanse of the Mississippi Valley, with its level-to-rolling surface except for the Ozark uplift in the lower central portion, should be especially noted.



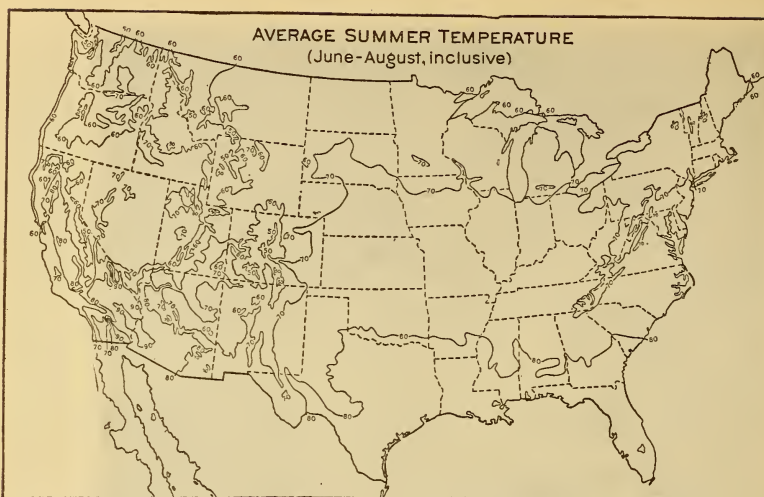


FIGURE 3.—Only a very small proportion of the land in the United States (not over 1 per cent) has a summer temperature too cool for the production of the harder small grains, potatoes, and hay. This land is located mostly in high mountainous sections where the surface, moreover, is too rough for cultivation, but temperature conditions restrict the production of several important crops. Practically no cotton is grown north of the line 77° F. average summer temperature, and very little corn is grown for grain north of 65°. The northern margin of the Corn Belt is 69° (in the West) to 70° (in the East). The cold margin for wheat is about 57° summer temperature, but for barley and potatoes it is possibly as low as 50°

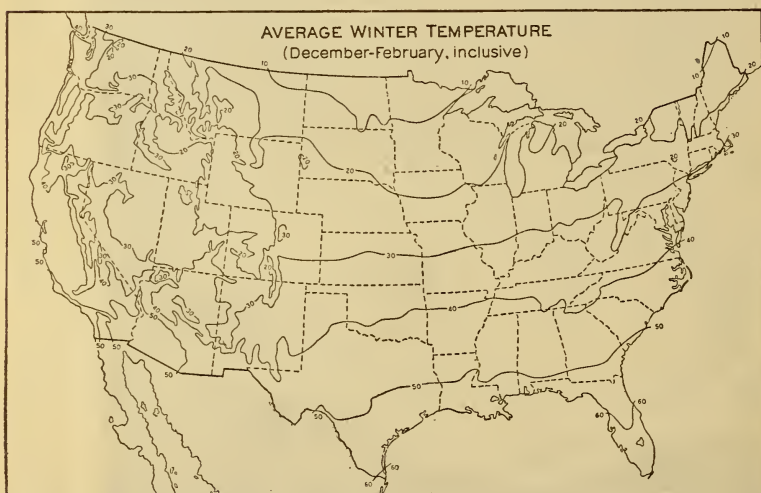


FIGURE 4.—The decrease in temperature with increase of latitude is much more rapid in winter than in summer, the difference between the Gulf coast and the Canadian border in Minnesota or Maine being 50° F. in winter and 20° in summer. Moreover, whereas in summer the interior of the continent is warmer than the coast, in winter it is very much colder, the Pacific coast being 20° to 40° warmer than most of the Mississippi Valley at the same latitude, and the Atlantic coast about 10° warmer. Altitude is the third major influence, the decrease in temperature averaging about 1° for each 300 feet of elevation. After allowance is made for elevation, the Far West is much warmer than the East in winter



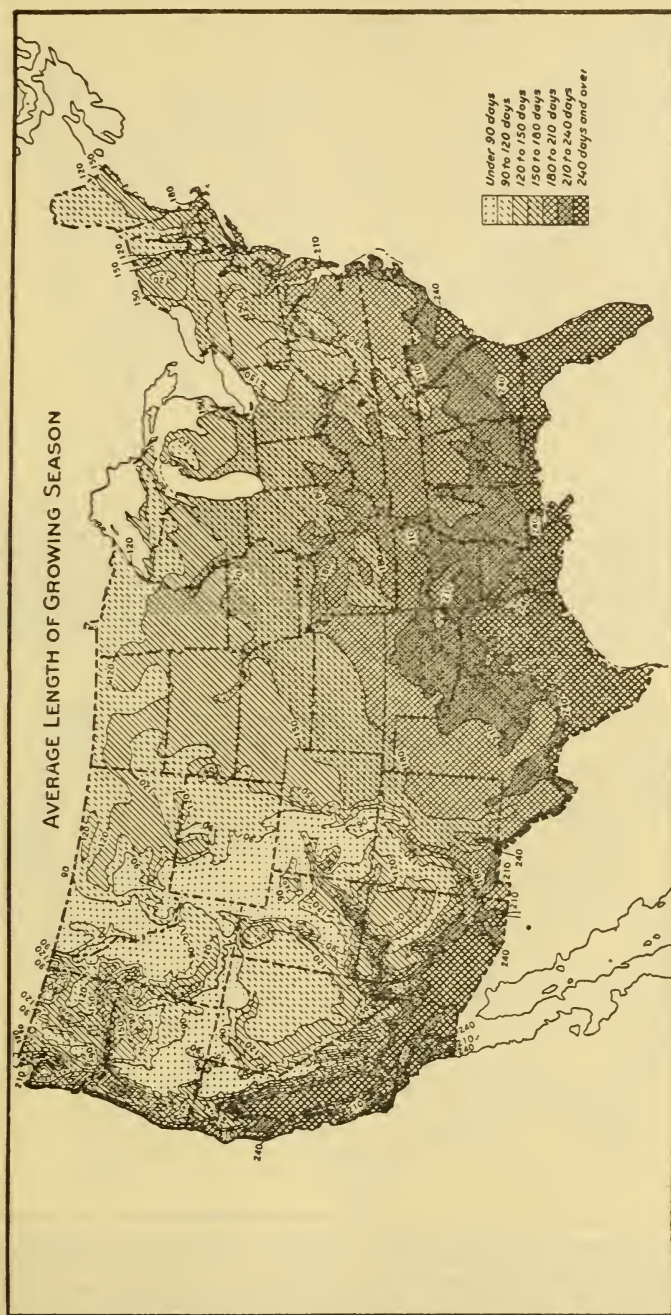


FIGURE 5.—This map is much reduced and generalized from a map prepared by the United States Weather Bureau and published in the *Frost and the Growing Season* section of the *Atlas of American Agriculture*. The higher altitudes of the Rocky Mountain and arid intermountain regions (fig. 2) and the drier air (fig. 8) which permits rapid loss of heat at night, are two important causes of the short frost-free season. Over much of these regions the frost-free season is shorter than in northern Maine or Minnesota. The powerful influence of the Pacific Ocean and the lesser influence of the Atlantic Ocean in lengthening the growing season along their shores should be noted.

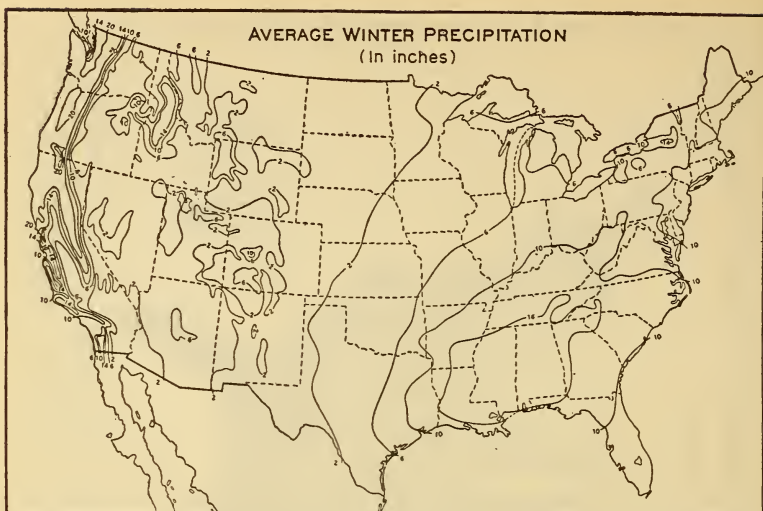


FIGURE 6.—West of the Rocky Mountains, except in Arizona, the winters are relatively wet and the summers dry. In the Great Plains region and prairie areas, which together extend from the Rocky Mountains eastward to Minnesota, Illinois, and central Oklahoma, the winters are dry and the summers are relatively wet. In the Northeastern States the precipitation is more evenly distributed through the year, and this is true of the Southeastern States, except that the autumns are slightly drier. Especially significant are the light winter and relatively heavy spring precipitation in the spring-wheat region; the heavy summer rainfall in the Corn Belt, so essential to a large crop; and the light rainfall in the Cotton Belt in the autumn, when the crop is being picked

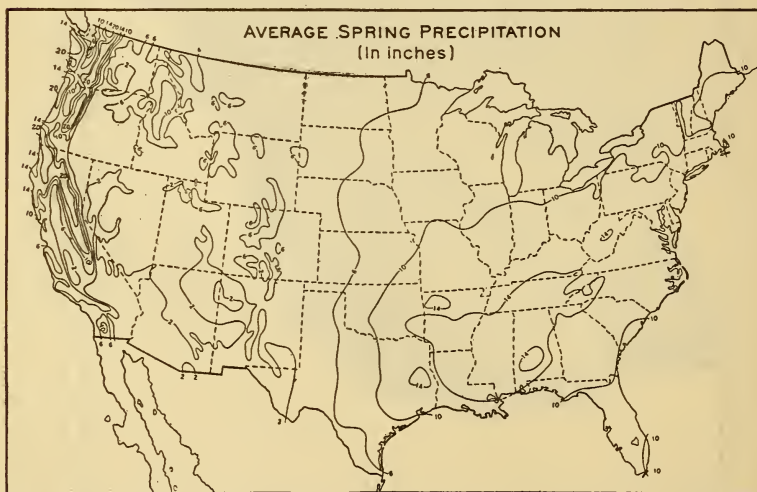


FIGURE 7.—The heavy winter rainfall along the Pacific coast continues during early spring, and this is true also of the northern Rocky Mountain region. In the spring-wheat region the rainfall increases markedly in late spring, and this is true also in the western Corn Belt and western Cotton Belt. In the central Cotton Belt the spring rainfall is even heavier than the winter rainfall, and the rainfall is heavier in spring than in winter also in the eastern Corn Belt. In the Northeastern and Southeastern States the spring and winter rains are about equal in amount (10 inches). The local variations in average quantity of spring rainfall in New York State are wider than shown on the map—from about 6 inches to nearly 14 inches

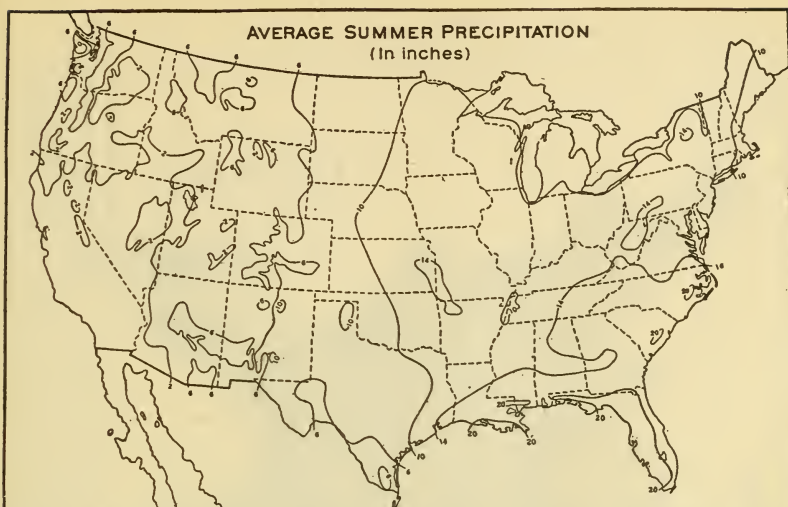


FIGURE 8.—In most of California and Nevada practically no rain falls in the summer months, except in the mountains, and there is very little rain in the Willamette Valley and the Puget Sound lowland. As far east as the crest of the Rocky Mountains the summer rainfall is light, except in the higher mountains. But in the Great Plains region, the Corn Belt, and the South-eastern States the rainfall has now increased to a maximum. It is owing in large part to the heavy summer rainfall, so conducive to heavy corn yields, combined with the dry winters, which promoted a grassland vegetation and conserved the fertility of the soil, that the upper Mississippi Valley is one of the richest agricultural areas in the world

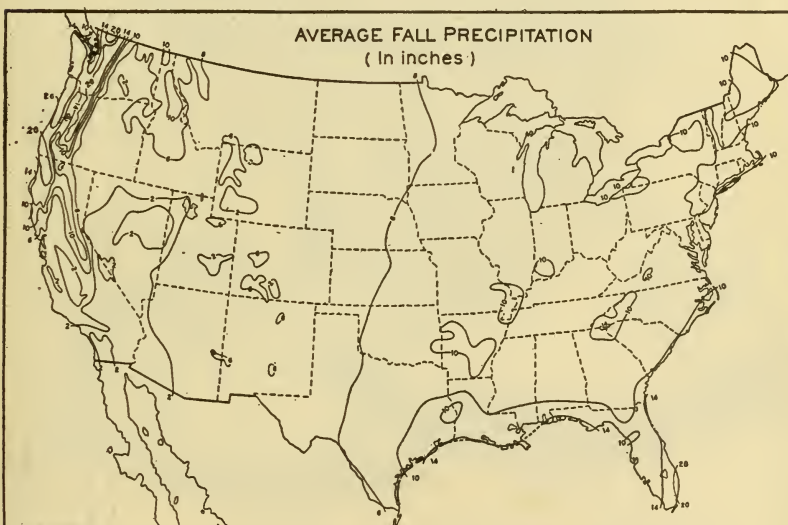


FIGURE 9.—In nearly all the Cotton Belt the autumn is the driest season of the year. Where the rainfall is heavy along the Gulf and south Atlantic coast, little or no cotton is grown, partly because of damage to the lint and difficulty of picking, partly because of greater boll-weevil infestation, and partly because of poorly drained or badly leached soils. The autumns are drier than the summers in practically all the rest of the United States east of Idaho and Nevada, and this favors harvesting of corn and of the later cutting of hay, as well as the picking of cotton. Along the Pacific coast the rains begin again in the late fall, and are much heavier north of San Francisco than to the south



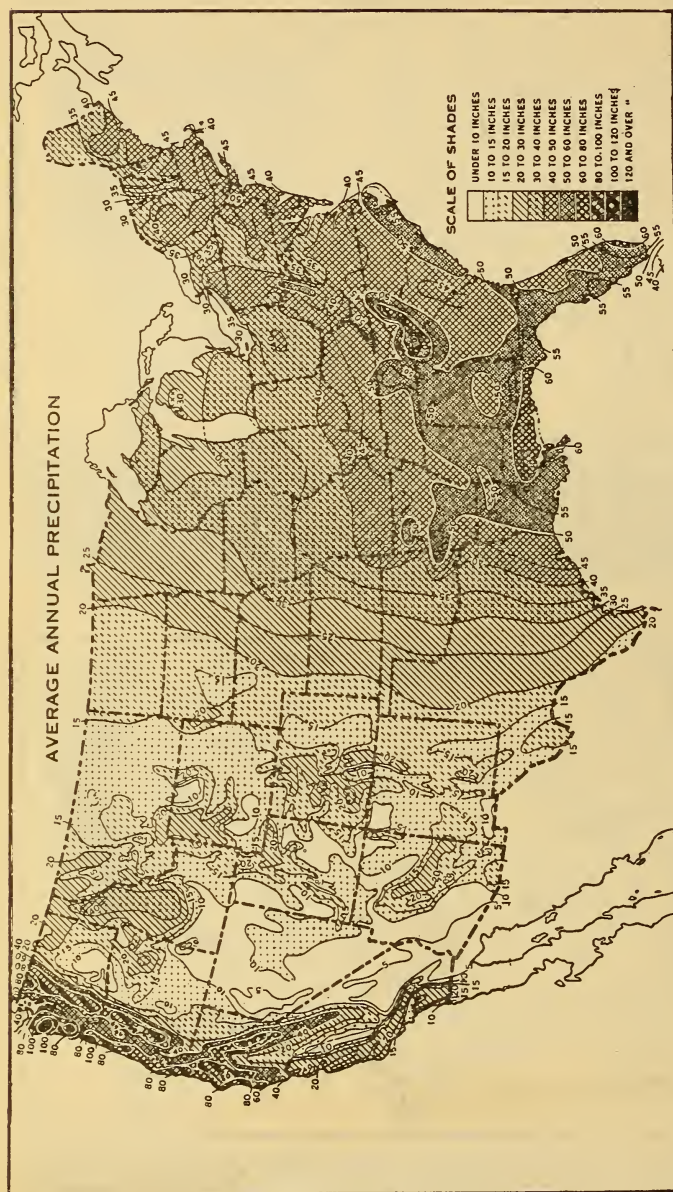


FIGURE 10.—Precipitation includes rain, melted snow, sleet, and hail. This map and the four seasonal maps preceding are much reduced and generalized from maps prepared by the Weather Bureau and published in the Precipitation and Humidity section of the Atlas of American Agriculture. The map suggests why the United States should be divided agriculturally into an eastern and a western part. However, the division shown in Figure 1 does not follow a line of equal precipitation but advances diagonally across two of the precipitation zones from 14 inches in the northeastern portion of Montana to 24 inches on the south Texas coast, where, because the evaporation is much greater and the rainfall more torrential, more rainfall is required for crop production.

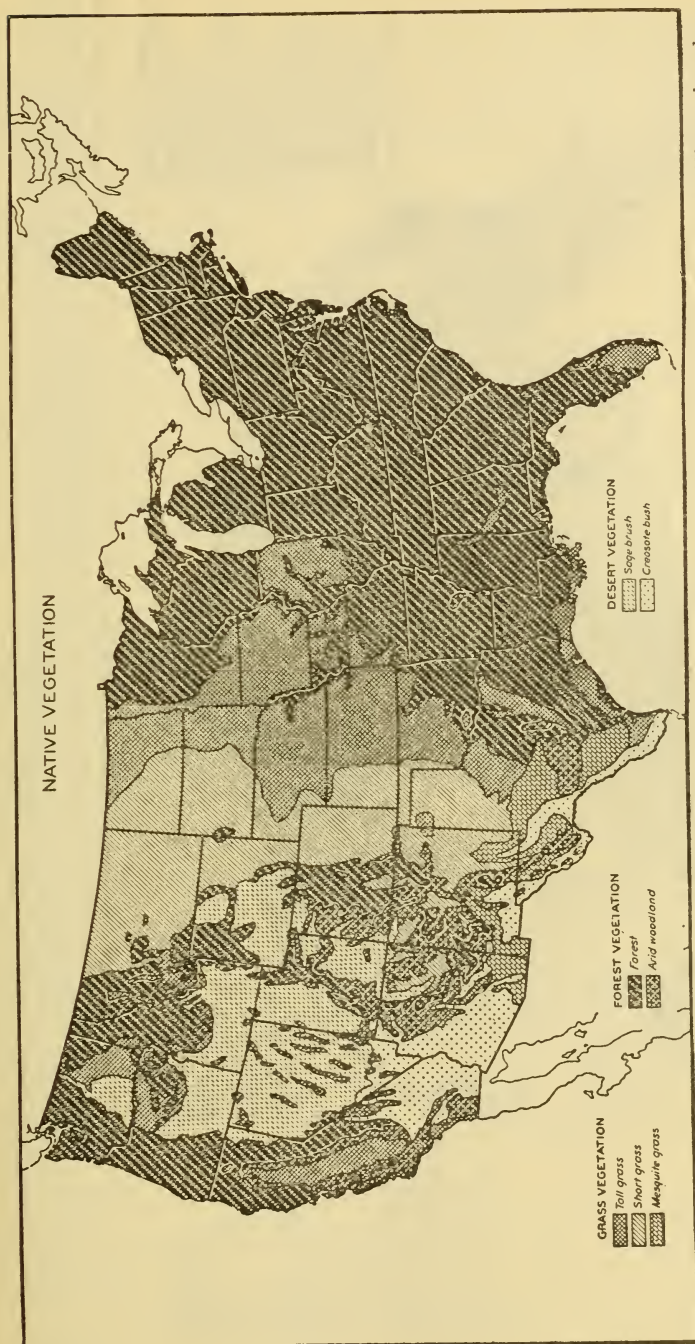


FIGURE 11.—Forests, excluding pinon-juniper and chaparral, originally covered about 800,000,000 acres in the United States. About 300,000,000 acres have been cleared for agriculture, and an even greater acreage has been cut over or devastated. (Fig. 28.) About 600,000,000 acres were clothed originally with grass, interspersed commonly with various herbaceous plants. Some 225,000,000 acres of this grassland have been plowed and used for crops, or for pasture in rotation with crops, including about 7,000,000 acres irrigated. Desert vegetation (including pinon-juniper and chaparral) characterized 500,000,000 acres, of which about 13,000,000 acres have been reclaimed by irrigation. Half of the remaining forest and woodland is pastured, practically all of the grassland, and nearly all of the desert. (Map prepared by Raphael Zon, Forest Service, and H. L. Shantz, formerly of the Bureau of Plant Industry)



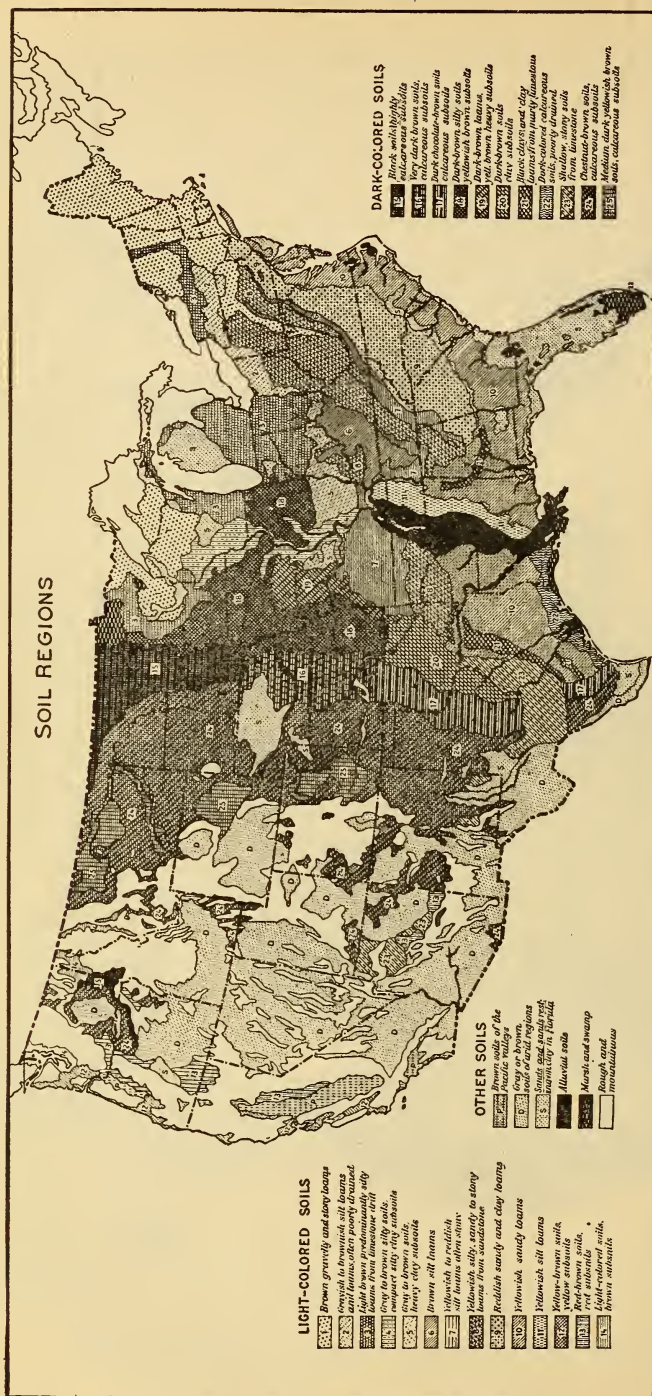


FIGURE 12.—Soils originally or at present covered with forest are normally light colored and are likely to be less fertile than soils in regions of lower rainfall. Grassland soils, in general, are dark colored, the humid prairie soils being commonly almost black and highly fertile, the subhumid prairie soils blackest of all, while the semiarid short-grass plains soils are dark-brown or chocolate colored, the color gradually fading with increasing rainfall, and to light brown or even ashy gray in desert areas. The light-colored forest soils in the United States total about 800,000,000 acres, the dark-colored grassland soils about 600,000,000 acres, and the light-colored arid soils about 500,000,000 acres. (Map prepared by C. F. Marbut and associates, Bureau of Chemistry and Soils)



## LAND UTILIZATION AND CROPS

The utilization of the land for agriculture is determined principally by the pressure of economic forces against the physical conditions. This pressure changes with progress in agricultural technique and with prices of agricultural products. The physical conditions have been classified into four groups—temperature, moisture, lay of the land, and soils—and generalized maps have been presented relating to these physical conditions. (Figs. 1 to 12.) The economic forces can not be reduced to such a simple classification, but it may be helpful in studying the utilization of the land to have several general principles in mind.

## FACTORS FAVORING SPECIALIZATION

(1) The crop or other product that is most productive per acre, especially if it is also more limited in climatic or other physical requirements of production than most other crops, and if the demand for it be extensive, tends to have first choice of the land.

(2) The crop or other product that has small bulk or weight per unit of value can best bear the cost of transportation, and tends to be grown, consequently, in those districts that afford the most favorable physical conditions.

## FACTORS FAVORING DIVERSIFICATION

(3) But it is not common in any part of the United States for a crop of high value per unit of weight or bulk to be grown to the exclusion of more bulky crops, because it pays to grow a certain quantity of these bulky crops to meet the local demand.

(4) Moreover, it is seldom that a single crop is grown to the exclusion of other crops, because of the varying seasonal requirements of the crops for labor. For instance, a farmer may be able to cultivate with his labor only 100 acres of corn, but he can grow also 50 acres of wheat, which can be seeded in the fall after the corn is cut and harvested in early summer after corn is laid by and before it is harvested. Although wheat may be less profitable per acre than corn, it pays the farmer to grow some wheat because he can thereby avoid the cost of extra labor involved if all the land were in corn.

(5) Not only is it desirable to grow such a combination of crops as equalizes the seasonal requirements of labor and meets the needs of local markets, but it is important to grow such a combination of crops as will aid in maintaining soil fertility and in promoting freedom from insects and diseases.

(6) Lastly, but not least important, is the character of the farm population and the accumulated community skill and experience. This factor favors specialization in some cases; diversification in others.

In the United States, cotton and corn, having a narrower climatic range than the other major crops and being more productive per acre, as well as enjoying an extensive demand, tend to have first choice of the land. Cotton also has a high value per unit of weight. Each of these crops so dominates the agriculture of the region in which the physical conditions are especially favorable for it that the two regions are commonly called the Cotton Belt and the Corn Belt. (Figs. 37 and 47.) Wheat, being a crop of wider climatic

range and of lesser value per acre, is partly pressed out of these regions into the corn and winter-wheat belt, which lies between the Corn Belt and the Cotton Belt, and into the subhumid and semiarid plains to the West. (Figs. 1 and 60.) In the humid portion of the Cotton Belt the climatic conditions are also unfavorable to wheat. On the semiarid plains of the Central West, wheat in turn becomes dominant in the hard winter-wheat region and the spring-wheat region. Beyond these regions, in the cool country to the north, where neither corn nor wheat is successfully grown, and in the dry country to the West, wild or semiwild hay, a crop less limited climatically and less valuable per acre, is extensively grown; while in many irrigated areas alfalfa becomes the major crop. (Figs. 98 and 105.) Where the climate is too cool, too wet, or too dry, or the land too stony or rough for the cutting of hay, pasture affords the most productive use of the soil (fig. 23), and where, as in some mountain sections, the land is too steep or stony for pastures, or too infertile, as in many sandy sections, forest becomes the only use, provided the moisture is sufficient. (Fig. 28). Finally, where there is no water for stock and insufficient moisture in the soil for trees, as in the driest portions of the Southwest, the land has no agricultural use, but may contain minerals.

But even on the richest soils, such as those of the central Corn Belt, although corn is the dominant crop, wheat or oats are grown, for reasons listed under principles (3) and (4) above, and for other reasons. Hay and pasture will also be found on most farms, and occasionally a wood lot, because the farmer needs wood, or the cost of clearing the land may be heavy, or because he loves the trees.

The trend is toward the use for crops of the more fertile or better located land, with reference to markets, or that more favorable to mechanized production, and the use for forests, where climatic conditions permit, of the less fertile or less favorably located land. Usually pasture is an intermediate stage between the use of land for crops and for forest in both the advance and the retreat of agriculture. In the originally forested eastern portion of the United States crop acreage decreased between 1919 and 1924 almost everywhere, but the decrease was greatest in counties of low land values and least in counties of high land values. In the semiarid areas of the West, on the other hand, crop acreage has been expanding to drier and drier land, with consequent contraction in the grazing area. This is owing to advances in technique, principally to use of larger units of power and to development of drought-resistant varieties of grain and cotton. Changes are constantly occurring in the relative value of different kinds of land, but the good farm land of the past continues to be good, and there is a tendency toward securing a greater proportion of the Nation's production from the better grades of land.

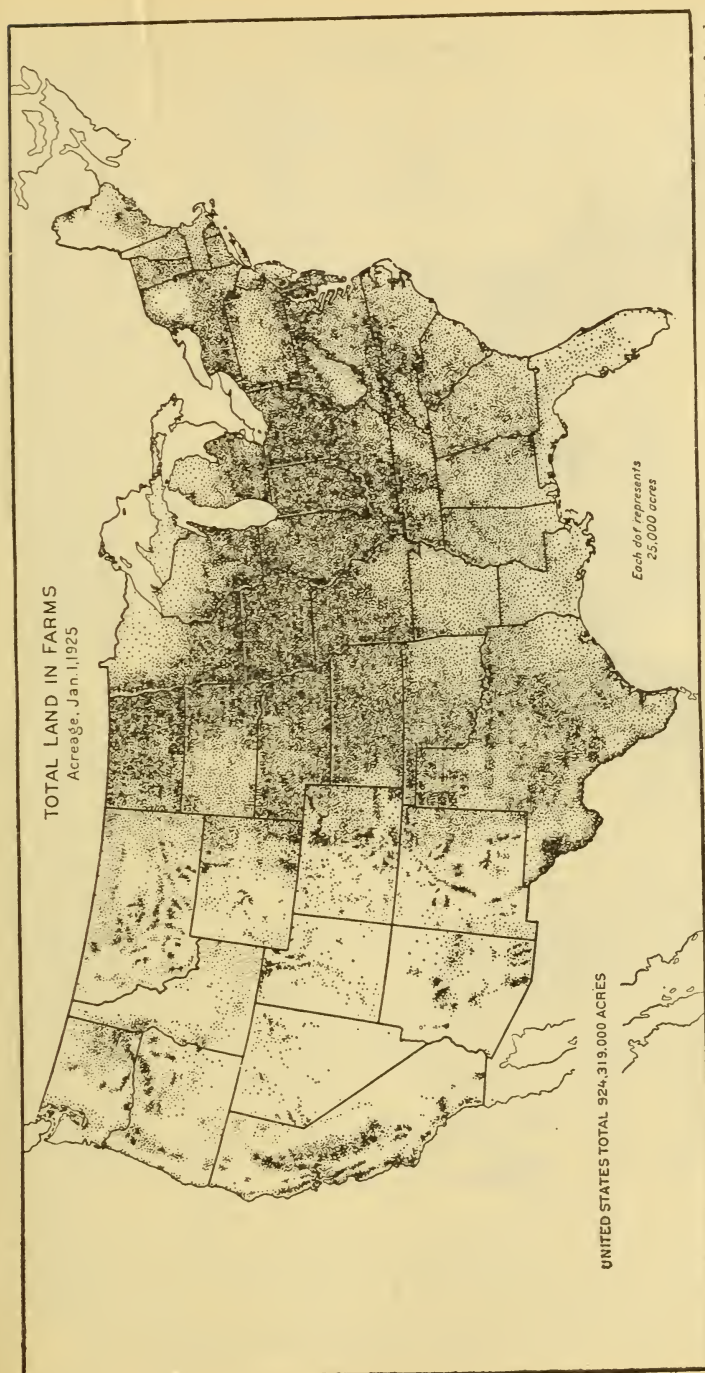


FIGURE 13.—Three-quarters of our farm land is in the Mississippi Valley. Or, considering the distribution with reference to rainfall, three-fourths is humid and sub-humid farm land in the East, and one-fourth is mostly arid or irrigated farm land in the West. In the East the land not in farms is hilly, stony, sandy, swampy, or infertile, and nearly all is in forest or has been recently cut over. (Fig. 28.) But in the West only one-sixth of the land not in farms is in forest, and one-fourth in wooded land and chaparral, while one-sixteenth is absolute desert, and the remainder is open range, more or less covered with grasses and shrubby plants and used for grazing cattle or sheep.



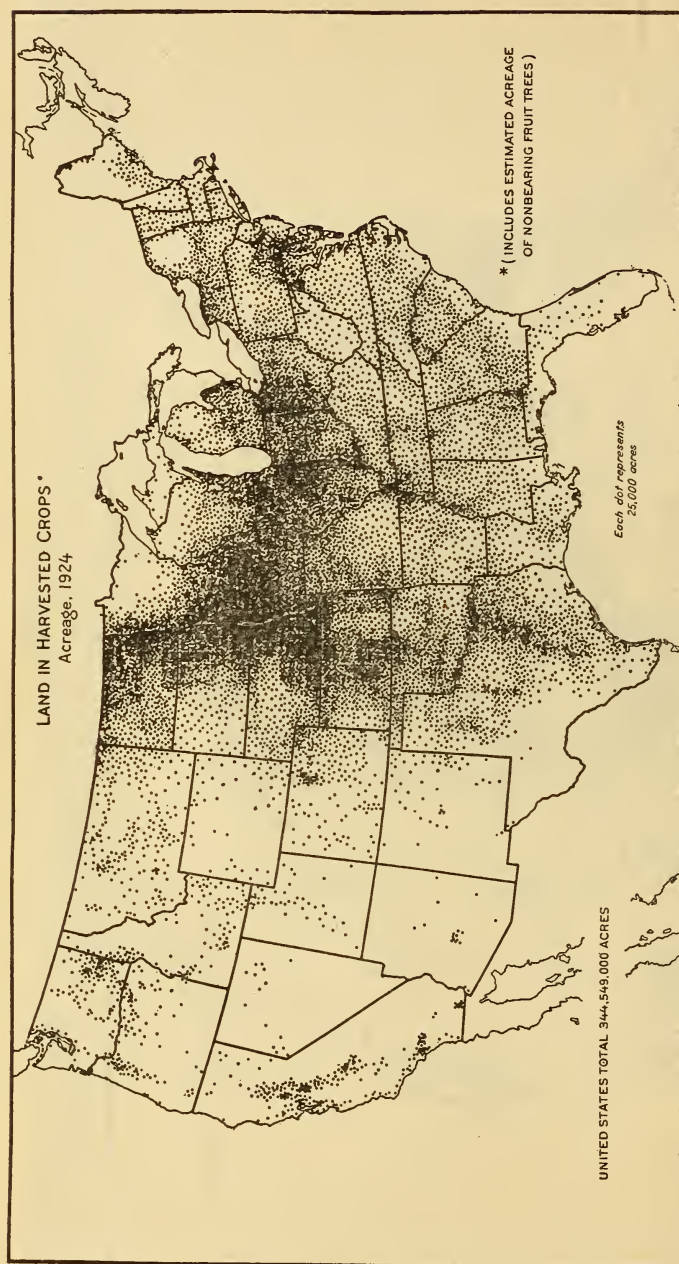


FIGURE 14.—Over five-sixths of the crop land is in the humid and subhumid eastern half of the United States, and nearly two-thirds is concentrated in a triangular-shaped territory the points of which are located in western Pennsylvania, southern Texas, and near the northwestern corner of North Dakota. In this territory which includes only about one-fourth of the land of the United States, are produced four-fifths of the corn, three-fourths of the wheat and oats, and three-fifths of the hay crop of the Nation. No territory in the world, of equal size, affords so favorable natural conditions for the growth of corn, and few possess so favorable conditions for the culture of the small-grain and hay crops.

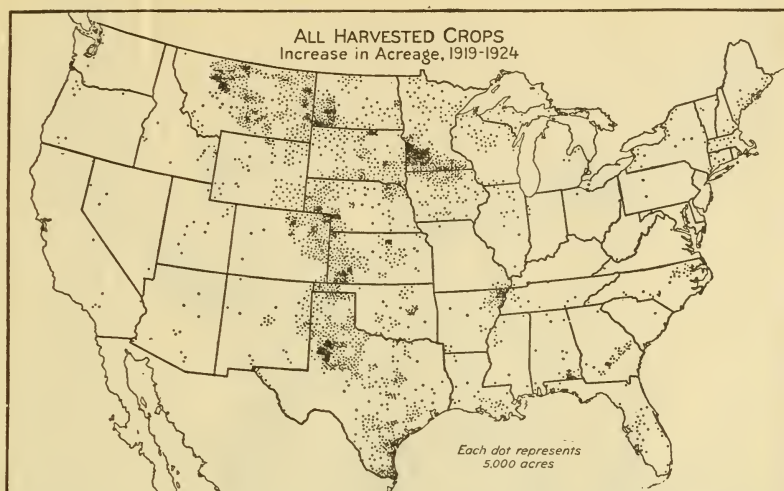


FIGURE 15.—The increase in crops harvested, between 1919 and 1924, was almost confined to the Great Plains region, which is well adapted to the use of large-scale machinery, and to southern Minnesota, with a few counties showing an increase in the upper Lakes country, in southern New England, southern Georgia, Florida, and the upper end of the Mississippi Delta. In the Dakotas and Montana, the increase indicated is somewhat exaggerated, as 1919 was a year of unprecedented drought and only a part of the crop acreage was harvested. In southern Minnesota also there was a large acreage of crop failure in 1919

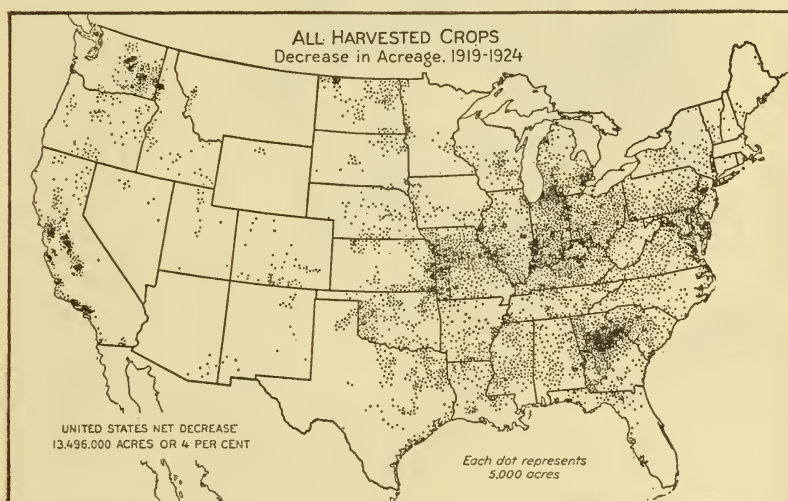


FIGURE 16.—A decrease in acreage of crops occurred between 1919 and 1924 in most of the originally forested portion of the United States, also in the valleys of California, and on the plateaus of eastern Washington. The outstanding decreases were in central Georgia, and in Kentucky, Indiana, and southern Michigan, with a lesser decline in Ohio, Missouri, and southern Illinois. Part of this land was used for pasture and part lay idle. (Fig. 22.) The soils in these areas are neither the worst nor the best in the United States, but the decrease was much greater proportionately in counties of low land values than in counties of high land values

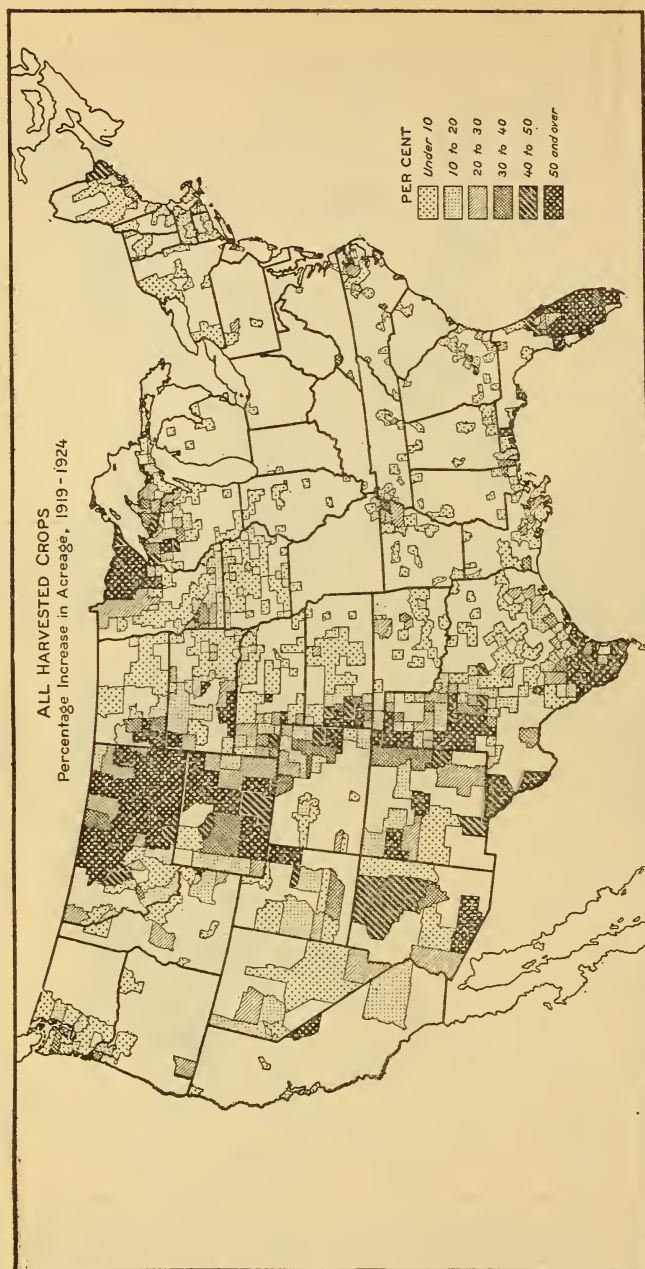


FIGURE 17.—The number of acres increase in crops harvested between 1919 and 1924 was small in southern Florida and northeastern Minnesota, but in proportion to the acreage in 1919 the increase exceeded 50 per cent. Likewise there are many counties in the grazing and irrigated-crops region in which the percentage increase was notable. The map also shows that the counties in which a greater or lesser increase occurred include most of New England, Iowa, Minnesota, and the northern Plains States; more than half of Texas, New Mexico, and Arizona; and western Washington. The high percentage increase in Montana and most of Wyoming is owing to severe drought in 1919, when only half the acreage seeded was harvested.



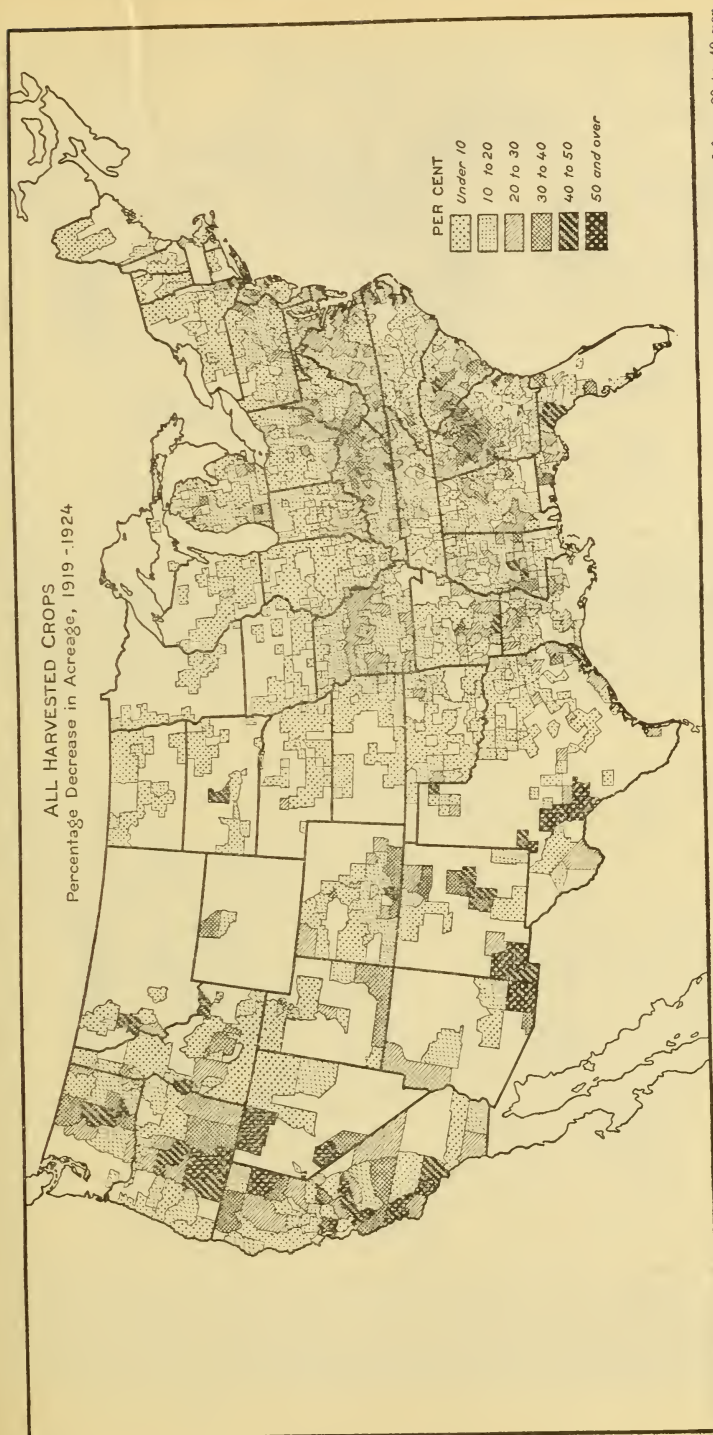


FIGURE 18.—The decrease between 1919 and 1924 in crops harvested exceeded 20 per cent in most of Georgia, and in a few counties rose to 50 per cent. It ranged from 20 to 40 per cent in a third of South Carolina and Kentucky. More surprising, it exceeded 10 per cent in most of Pennsylvania, Ohio, Indiana, and Missouri. Large proportionate decreases occurred in eastern Washington and Oregon and in much of California. In general, the regions of greatest proportionate decrease are the eastern and central Cotton Belt, the corn and winter-wheat belt, and the Pacific coast, excluding western Washington. These are regions of less fertile soils, in general, or of deficient rainfall.

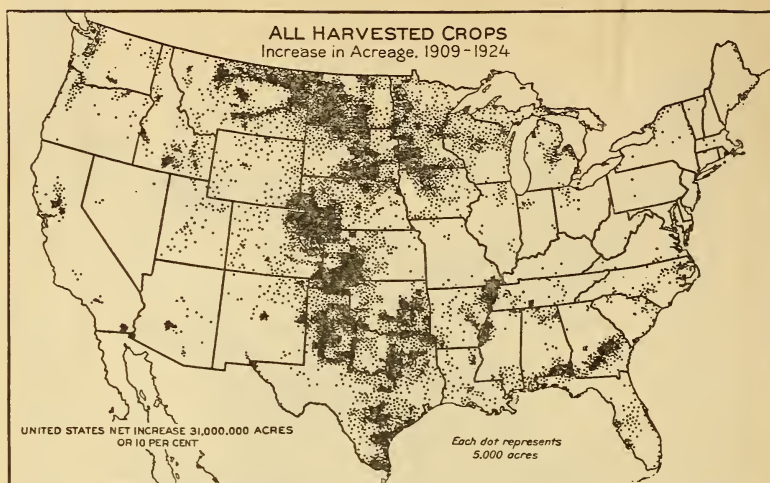


FIGURE 19.—The year 1919 was the culmination of the period of war-time prosperity and was a year of severe drought in the northern Great Plains, so comparison of crop acreage harvested in 1924 with that harvested in 1909 may be fairer and more instructive. It is clear that the areas of increase are similar but more extensive. (Fig. 15.) A large increase is indicated for practically all the counties of Montana, the Dakotas, Minnesota, and Wisconsin, also for western Nebraska and Kansas, eastern Colorado, and nearly all of Oklahoma and Texas. Local increases are shown, in all the far Western States; and a large acreage of drained land has been planted to crops in the Mississippi River bottoms. An increase is indicated also in parts of the coastal plain of Georgia and Alabama.

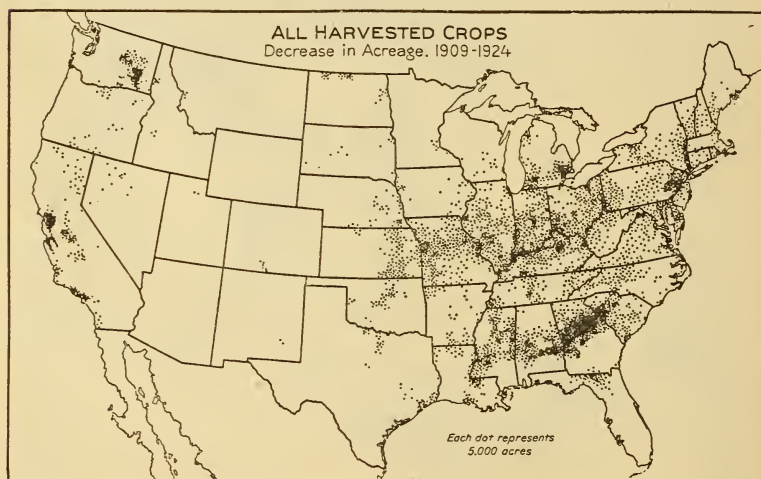


FIGURE 20.—The areas showing a decrease in crop acreage between 1909 and 1924 are strikingly similar to those of decrease between 1919 and 1924; in other words, most of the decrease occurred between 1919 and 1924. In New England, in the black prairie of Alabama and Mississippi, and in the Flint Hills of Kansas and Oklahoma, crop acreage had declined between 1909 and 1919; but in nearly all other parts of the United States crop acreage increased. Stimulated by the World War the net increase between 1909 and 1919 was about 43,000,000 acres. From 1919 to 1924 the net decrease was 13,000,000 acres. The net gain from 1909 to 1924 was, therefore, about 30,000,000 acres, which is nearly 10 per cent. The increase of population was about 26 per cent

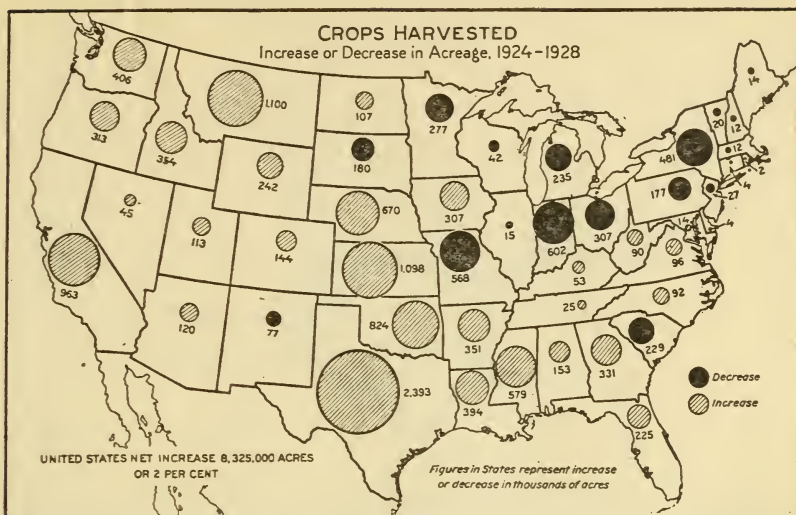


FIGURE 21.—Between 1919 and 1923, according to the estimates of the United States Department of Agriculture, the increase in crop acreage continued in the Great Plains region, except in South Dakota and New Mexico. In 1929, however, crop acreage in both of these States was much greater than in 1924. In all the far Western States crop acreage increased between 1924 and 1928, and by 1929 the increase was still greater. The Southern States east of Texas and Oklahoma, except South Carolina, by 1928 had recovered part of the losses incurred between 1919 and 1924, with North Carolina the recovery being the largest. But in the Northern States, in the eastern Corn Belt, in Missouri and Michigan, and, to a less extent in Wisconsin, the decline has continued.

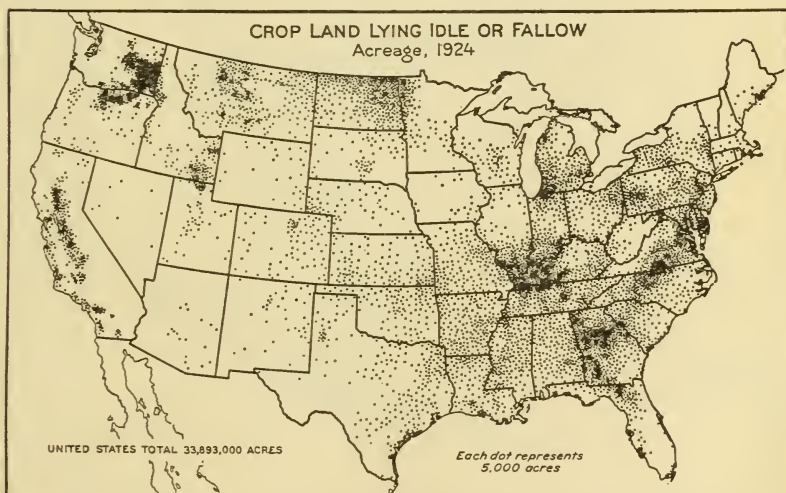


FIGURE 22.—The greatest extent of crop (plow) land lying idle in 1924 was in the piedmont belt, extending from New York City to Alabama. Another notable area included western Kentucky and southern Indiana and Illinois. The soils in both these areas are of medium or low fertility. The large acreage in North Dakota and Montana is partly summer fallow, and the dense area in eastern Washington is mostly summer fallow. However, in these areas, and in California, a large acreage of dry-farming land lay idle. Probably 25,000,000 acres of crop land in the United States lay idle in 1924.



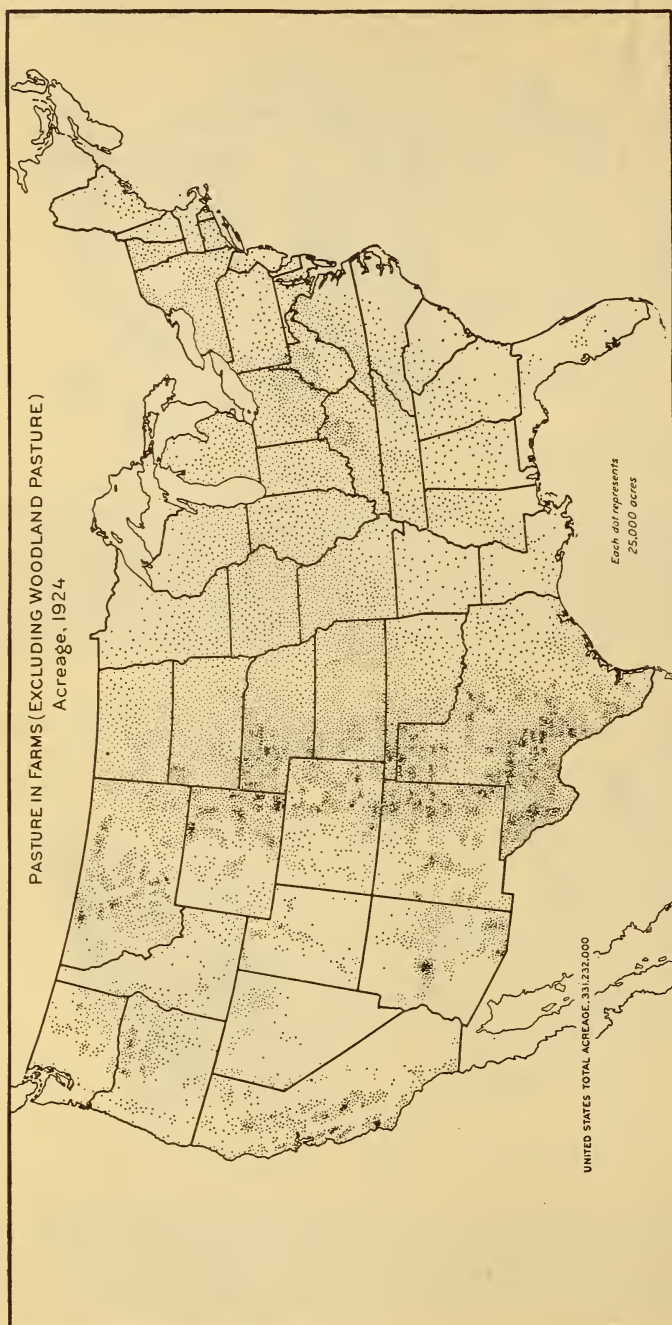


FIGURE 23.—The Great Plains region, extending from Montana and the Dakotas to the Edwards Plateau of Texas, includes more than half of the pasture land in farms in the United States. There is a large acreage of pasture in the Corn Belt, especially in southern Iowa and northern Missouri. In the East the densest acreage is in the blue-grass district of Kentucky and the upper Ohio Valley, in New York, and in Vermont. West of the Rocky Mountains the farm pastures are found mostly in the valleys of California and in eastern Oregon and Washington. There is a great difference in the value of these pasture lands indicated on the map.

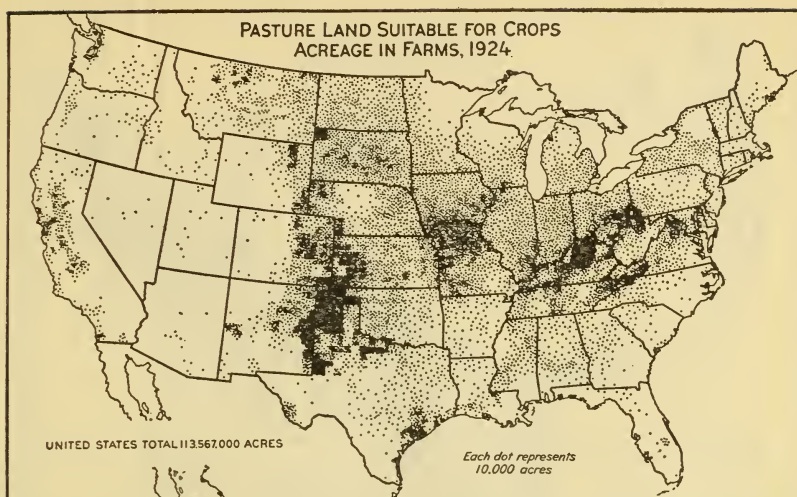


FIGURE 24.—Six sections where plowable pasture is very important can be seen on the map: (1) The bluegrass basin of Kentucky, (2) the Valley of Virginia, and (3) the lower Shenandoah Valley, all areas of limestone soils often shallow (Hagerstown series), (4) the upper Ohio Valley, having soils partially derived from limestone, (5) the flat uplands in northern Missouri and southern Iowa, and (6) the southern Great Plains ("high Plains") extending from western Nebraska to the Edwards Plateau in Texas, which, though much larger, are much lower in carrying capacity per acre because they are semiarid. This high Plains territory is rapidly passing from grazing to crop farming. Pasture in rotation with crops constitutes a considerable part of the plowable pasture, except in the South and in the grazing and irrigated-crops region. (Fig. 1)

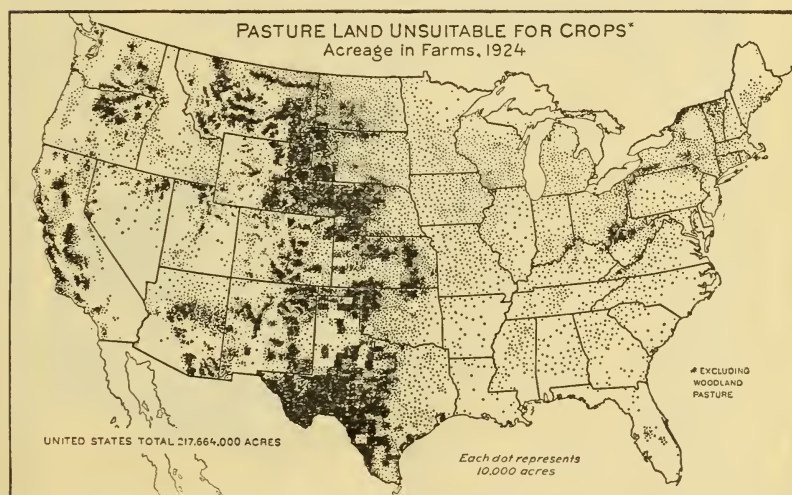


FIGURE 25.—Most of the pasture land in farms unsuitable for crops is located in the Great Plains region, but there are large acreages in the Pacific Coast States and Arizona, in the upper Ohio Valley, in New York, and New England. A less dense distribution of such pasture is found in the Great Lakes States, Iowa, Missouri, and western Illinois. In addition to this pasture land in farms, there is much grazing land not in farms, principally in the western half of the United States. The aggregate of pasture and range land in the Great Plains region and westward to the Pacific coast is nearly 800,000,000 acres, but most of this land is of low carrying capacity

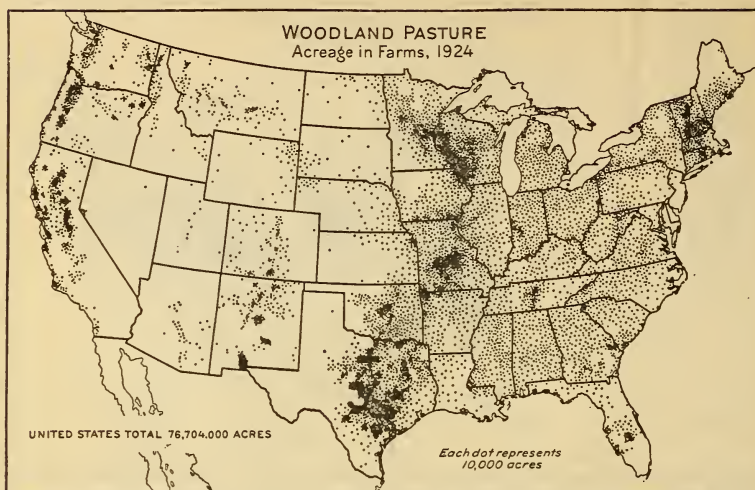


FIGURE 26.—Half of the forest and woodland in farms is used also for pasture; and along the prairie margin in central Texas, Oklahoma, and Missouri, in Illinois, western Wisconsin, and central Minnesota, where the stand of trees is thin and there is much grass beneath, nearly all the woodland is used for pasture. In New England and New York, where the trees are creeping down onto the pastures, there is a large acreage of woodland pasture. In the South, especially in the open stands of longleaf pine, it is common practice to graze cattle and even hogs in the forests. This is true also of the live oak groves that fringe many of the valleys of California

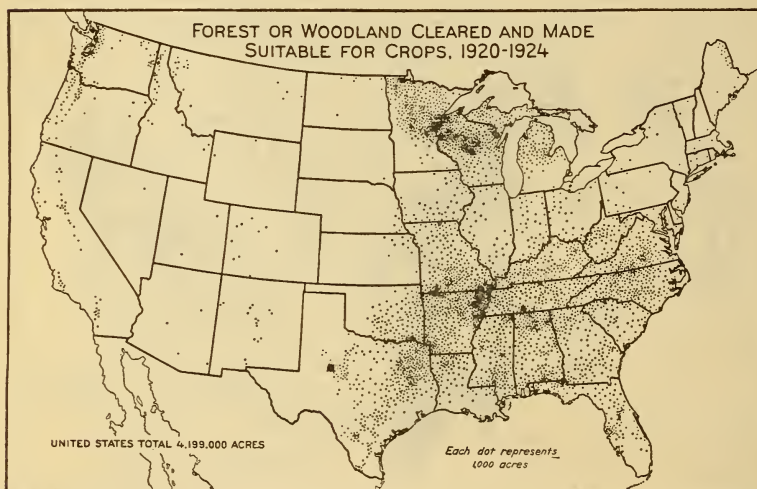


FIGURE 27.—Despite the agricultural depression that has persisted since 1921, over 4,000,000 acres of forest or cut-over land were cleared and made suitable for crops during the years 1920-1924, according to the census returns. Nearly all of this land was located in the South (south of the Potomac, Ohio, and Missouri Rivers), in the upper Lakes region, or in the Pacific Coast States. About 13,000 acres were cleared in Aroostook County, Me., but very little elsewhere in the North-eastern States. While these 4,000,000 acres were being cleared for crops, about 25,000,000 acres went out of use for crops, largely in these same areas. (Figs. 16 and 22.)



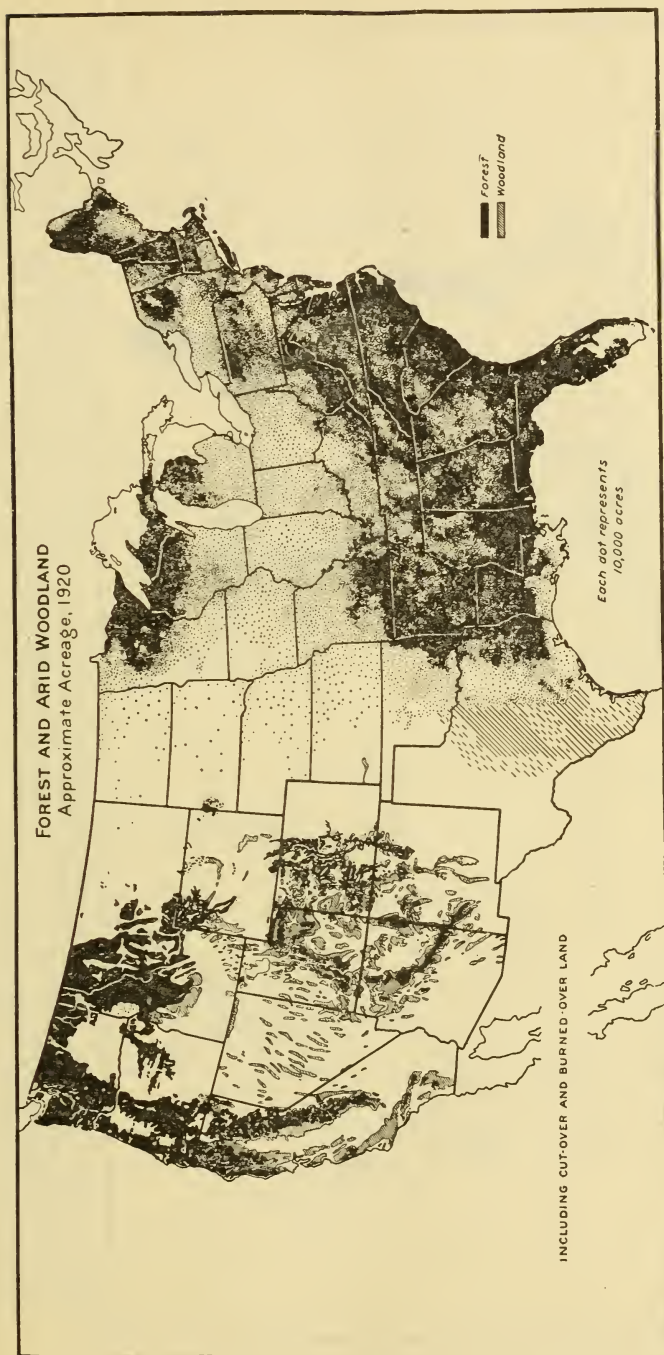


FIGURE 28.—This generalized map of forest, cut-over land, and woodland was prepared in cooperation with the Forest Service. The estimates for the States in the originally forested eastern portion of the United States, except for several States in which forest surveys have been made, are based largely on deductions from the statistics of the 1920 census. Of the 483,000,000 acres of forest and cut-over land in the United States about one-half is in the South, one-eighth in the Northeastern States, one-eighth in the Lakes States, and nearly one-quarter in the West, mostly in the Rocky Mountain and north Pacific regions. However, over half of the 137,000,000 acres or less of virgin saw timber is in the West.

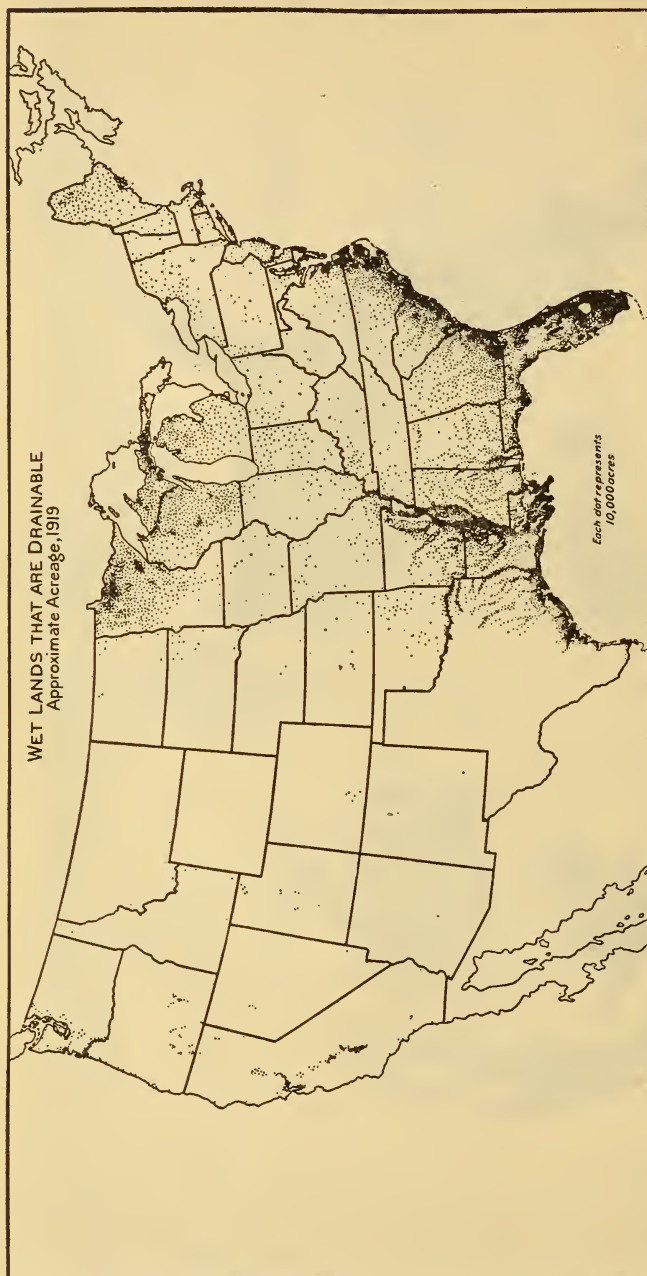


FIGURE 29.—Two-thirds of the land unfit for cultivation without drainage is in the Southern States, and one-half of the remainder is in the three Lakes States. Nearly all of the wet land in the South, except the Florida Everglades and prairies, tidal marsh, and Gulf coastal prairies is forested, and requires both drainage and clearing; but much of the wet land in the Lakes States consists of unforested peat bogs. (Based largely upon drainage reports in office of irrigation and drainage investigations of the United States Department of Agriculture, and upon Soil Survey, topographic, and Land Office maps. Drawn by L. A. Jones, Bureau of Public Roads, and F. J. Marschner, Bureau of Agricultural Economics, after comparison with statistics of drainage enterprises and of land in farms that need drainage, according to the 1920 census)



FIGURE 20.—The area of irrigated land increased 5,000,000 acres, or one-third, between 1909 and 1919; and the irrigation enterprises were capable of irrigating 7,000,000 acres more than were actually irrigated in 1919. There is sufficient water in the West to irrigate double the area the enterprises were capable of irrigating in 1920, or about 30,000,000 acres, when higher prices of farm products justify the constantly increasing cost per acre of construction of irrigation works. California, Colorado, and Idaho lead in irrigated acreage at present, but Montana rises into second place in the estimate of total irrigable area.



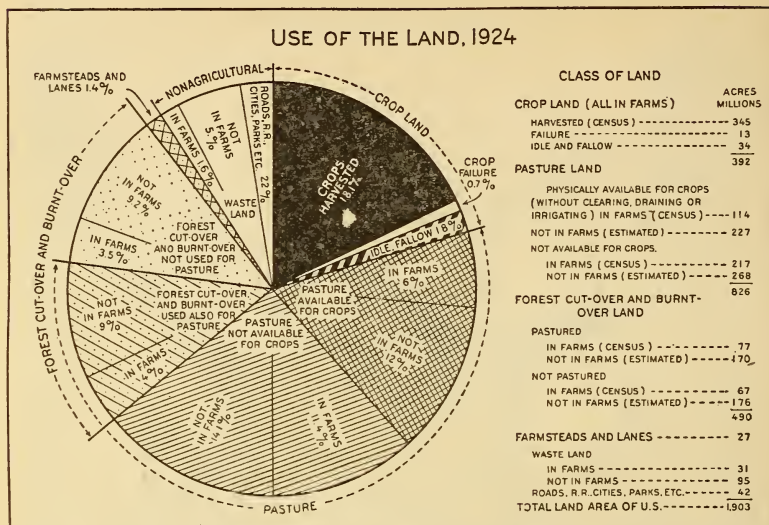


FIGURE 31.—About 20 per cent of the land area of the United States is crop land, about 44 per cent is pasture and grazing land, not including woodland pasture, and over 25 per cent is forest or cut-over land. Approximately half of this forest and cut-over land is also used for pasture. Of the remaining 9 per cent, 7 per cent is waste land—ungrazed deserts and marshes, bare rock, and sandy beaches—and 2 per cent is occupied by roads, railroads, cities, parks, etc. There is almost as much physically cultivable land now used for pasture as that in cultivation at present, but it is poorer land which can not be cultivated with profit at the present price of farm products

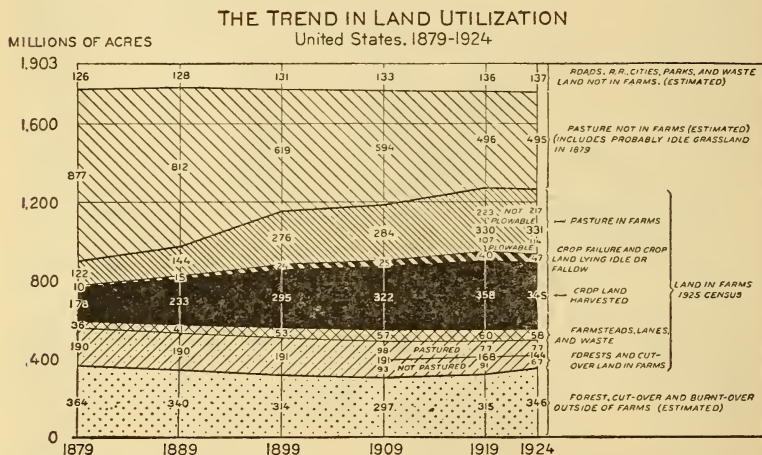


FIGURE 32.—The agricultural conquest of the continent is over. Although there is as much tillable land still available as that now tilled, this land is mostly too dry or too wet, too steep or stony or sandy, to cultivate profitably under present conditions, or those likely to arise in the near future. Between 1879 and 1919 the acreage of crops doubled, but between 1919 and 1924 it decreased 13,000,000 acres—the first decrease recorded by the census in the Nation's history. About half of this lost acreage was used for pasture and half lay idle. A tendency to include less forest and cut-over land in farms may be noted, a rapid increase in crop land lying idle, and the same total pasture acreage in 1924 as in 1919

### CHANGES IN COMBINED ACREAGE AND TOTAL PRODUCTION OF CORN, WHEAT, OATS, AND POTATOES IN UNITED STATES

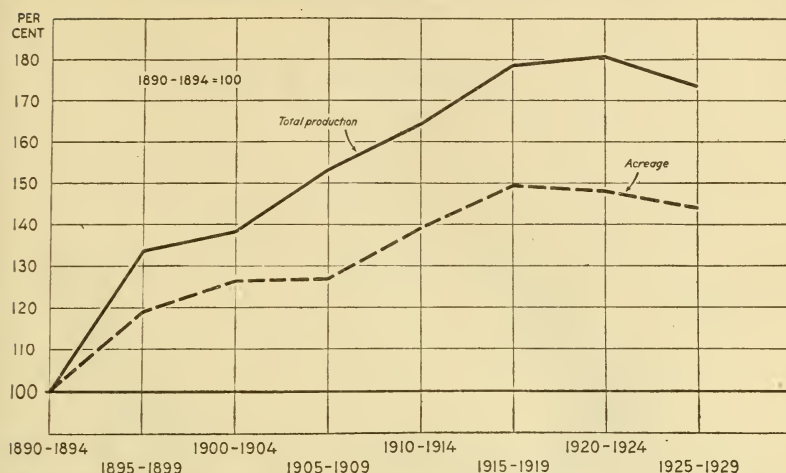


FIGURE 33.—During the 10 years between the periods 1890-1894 and 1905-1909 the combined acreage of corn, wheat, oats, and potatoes increased 27 per cent, while production increased about 54 per cent. The average yield per acre, therefore, increased 21 per cent. During the next decade acreage and production increased at about the same rate, that is, there was no change in yield per acre. But after the World War, in the period 1920-1924, acreage decreased slightly and production increased, owing largely to several excellent corn crops. During the last five years acreage has continued to decline and production has declined still more, indicating a slight decrease in yield per acre.

### CHANGES IN COMPOSITE YIELD PER ACRE FOR CORN, WHEAT, OATS, AND POTATOES

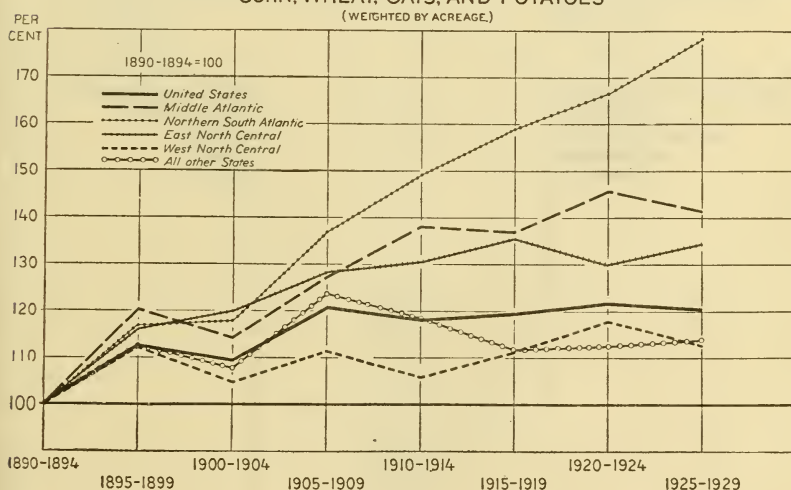


FIGURE 34.—The combined yield per acre of the four crops for which the best figures are available (corn, wheat, oats, and potatoes) has changed little since the period 1905-1909 in the United States as a whole, and in the West North Central States as a whole (Missouri and Kansas to Minnesota and the Dakotas), while in the East North Central States (Ohio, Indiana, Illinois, Michigan, and Wisconsin) the increase has been slight, about 6 per cent. But in the Middle Atlantic States (New York, Pennsylvania, and New Jersey) the average acre yield has increased 15 per cent, and in the northern South Atlantic (North Carolina, Virginia, Maryland, and Delaware) the increase has been about 30 per cent. These are States where the use of fertilizer has become common. (Fig. 220.) In most other States the acre yield has declined.

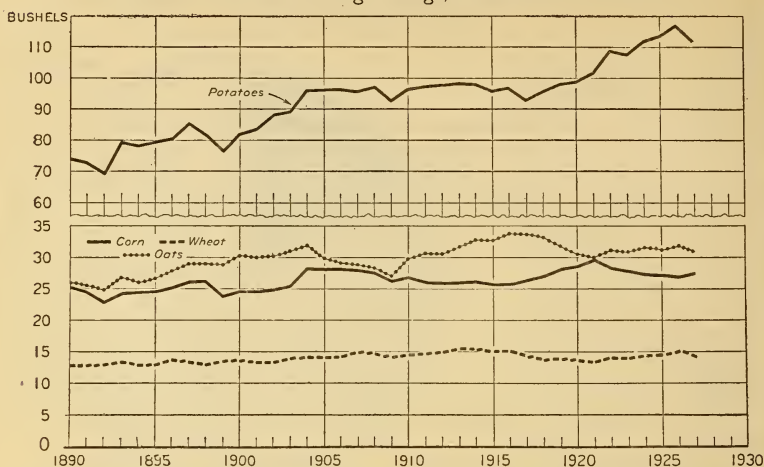
CORN, WHEAT, OATS, AND POTATOES: YIELD PER ACRE FOR UNITED STATES  
5-Year Moving Average, 1890-1927

FIGURE 35.—The yield of corn per acre in the United States is now 2 or 3 bushels greater than it was about 1890, but only about the same as in the years 1904 to 1908. The acre yield of wheat is 2 bushels more than 30 to 40 years ago, but no greater than in 1907 to 1916. The yield per acre of oats is also 2 or 3 bushels greater than it was about 1900 but not so high as in 1914 to 1918. Apparently the spread of these crops to semiarid lands together with the relatively low prices in recent years, which have retarded the use of fertilizer, has resulted in a cessation of the upward trend in acre yields. On the other hand, the acre yield of the potato crop, on which large quantities of fertilizer are used, has increased greatly since the World War

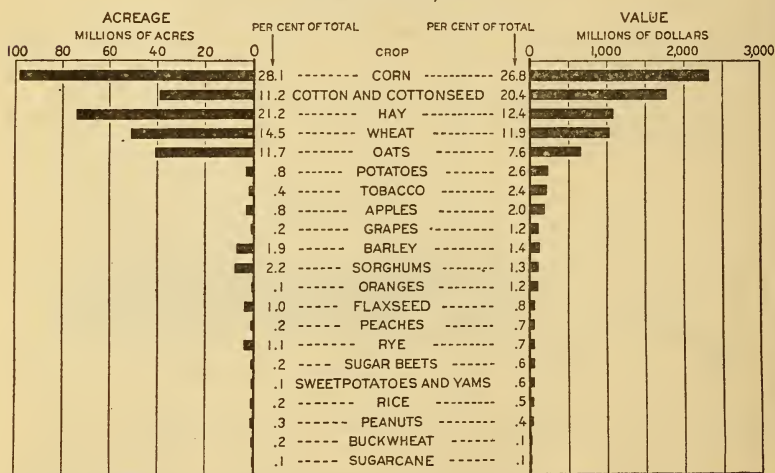
PRINCIPAL CROPS: RELATIVE IMPORTANCE IN ACREAGE AND VALUE  
United States, 1924

FIGURE 36.—Five crops—corn, cotton, hay, wheat, and oats—constitute nearly 90 per cent of the acreage and nearly 80 per cent of the value of all crops. Corn is the leading crop on the basis of both value and acreage, constituting over one-fourth that of all crops. Cotton ranked second in value, but fifth in acreage in 1924, the value of the cotton crop per acre being about twice that of corn or wheat. Hay ranked third in value and second in acreage. Wheat stood fourth in value but third in acreage, while oats were fifth in value and fourth in acreage. Potatoes, then tobacco, and then apples, ranked next to these five crops in value, but the grain sorghums, barley, and rye ranked next in acreage



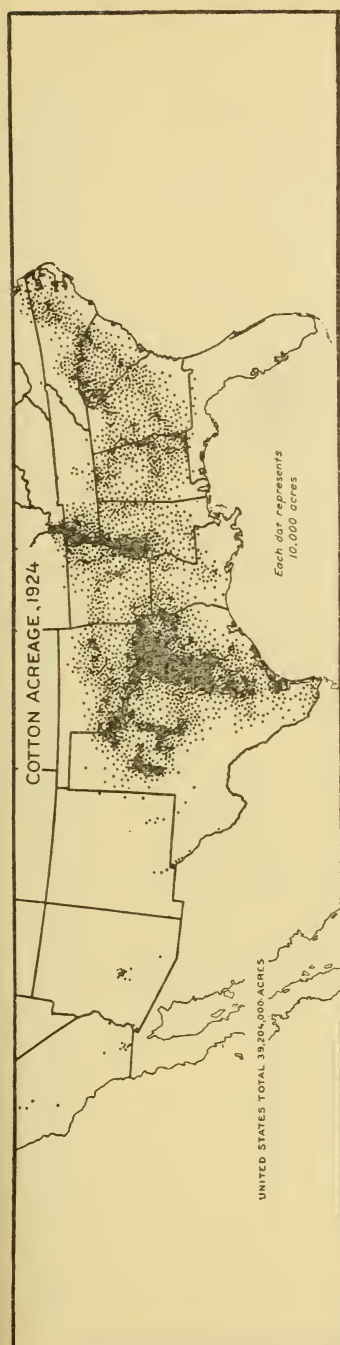


FIGURE 37.—The northern boundary of the Cotton Belt is approximately the line of 263 days average frost-free season (fig. 5) and 77° F. mean summer temperature, the southern boundary that of 11 inches of autumnal rainfall, because wet weather interferes with picking and damages the lint. This southern boundary has moved slightly northward, as the milder winter temperatures near the Gulf and the longer season permit increased injury by the boll weevil. The western boundary of cotton production without irrigation is approximately the line of 20 inches of average annual rainfall. (Fig. 10.) The densest areas on the maps are districts of richer soils, notably the black prairie of Texas and the Yazoo Delta (fig. 12), or heavily fertilized soils, especially those of the Piedmont and upper coastal plain (fig. 220)

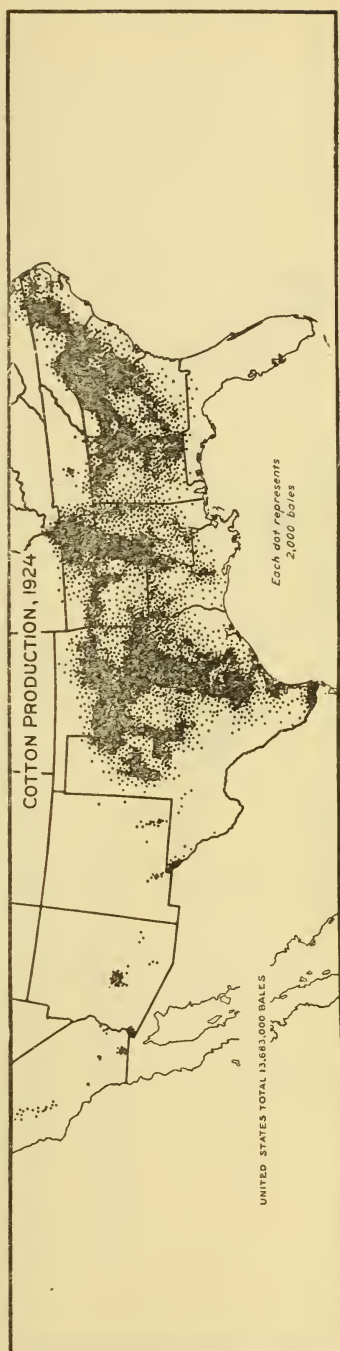


FIGURE 38.—The production of cotton in 1924 was much heavier in the eastern Cotton Belt than the map of acreage suggests

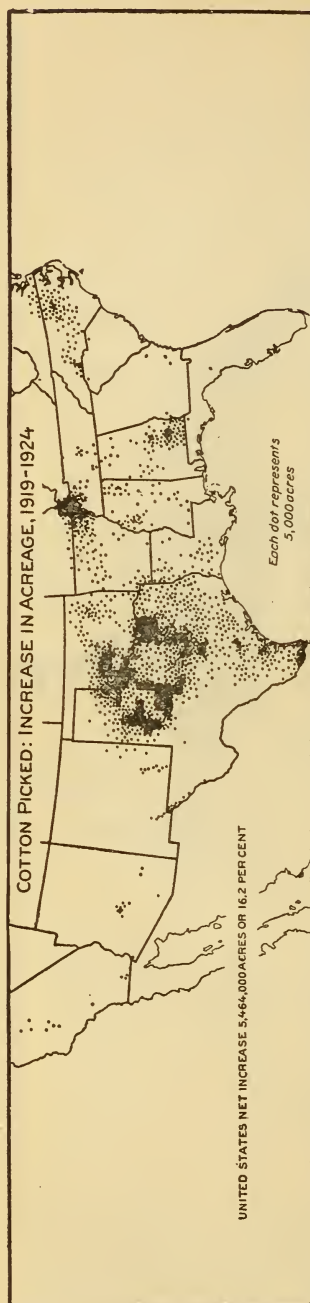


FIGURE 39.—The increase in cotton acreage between 1919 and 1924 was notable in Texas and Oklahoma, in the upper end of the Mississippi Delta, in southeastern Alabama, and in much of North Carolina. The increase occurred mostly in the older, western portion of the Cotton Belt and along the northern margin, where boll-weevil damage is small, or nonexistent.

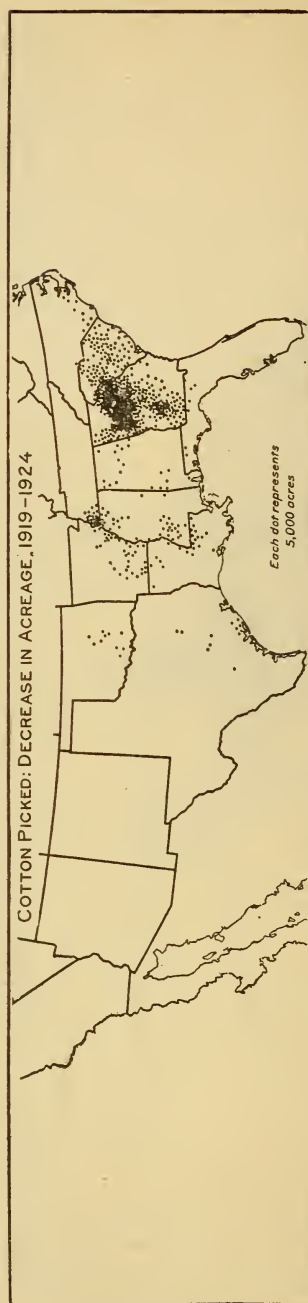


FIGURE 40.—The decrease in cotton acreage between 1919 and 1924 was notable in Georgia and South Carolina, and a smaller decrease is indicated in the sections around Memphis and southward. The decrease in Georgia and South Carolina was associated with the advance of the boll weevil and with the high wages offered in nearby manufacturing towns and in northern cities. Perhaps an even greater factor was competition with more cheaply produced cotton in Texas and Oklahoma.

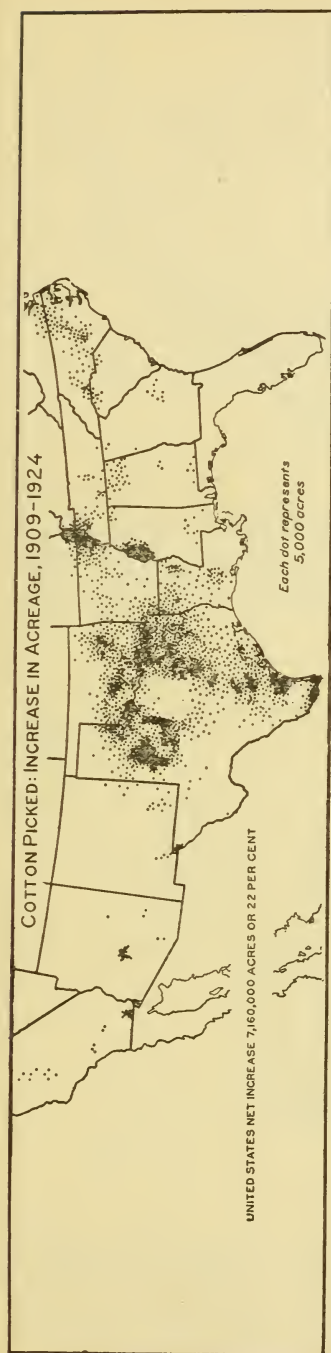


FIGURE 41.—The increase in cotton acreage between 1909 and 1924 took place in practically the same districts as the increase between 1919 and 1924, that is, the great geographic shift in production occurred after 1919. The increase in the Yalozoo Delta, however, occurred prior to 1919. The dense areas of increased acreage farthest west in Texas are located mostly on the Staked Plains, where much of the cotton is picked by means of "sleds," or large combs drawn through the fields, which operation greatly reduces the cost.

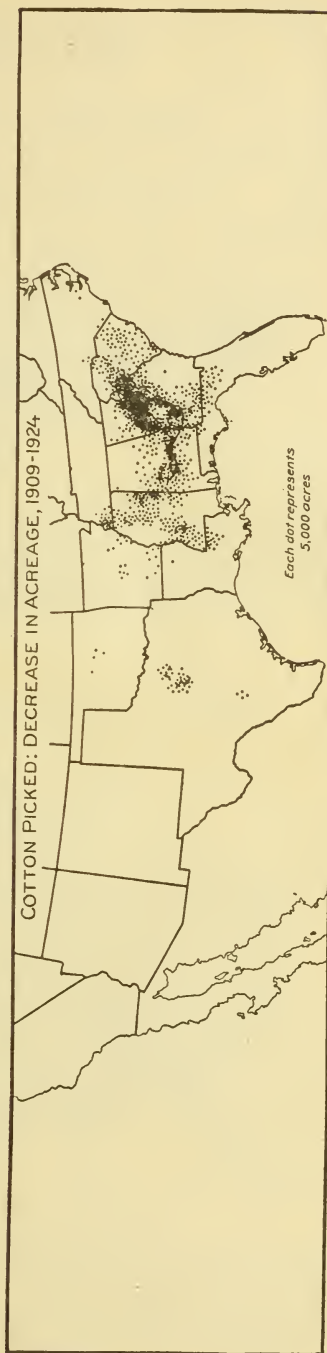


FIGURE 42.—The decrease in Georgia and South Carolina occurred after 1919, but it appears that a notable decrease occurred in Alabama and Mississippi, outside the Delta, between 1909 and 1919.



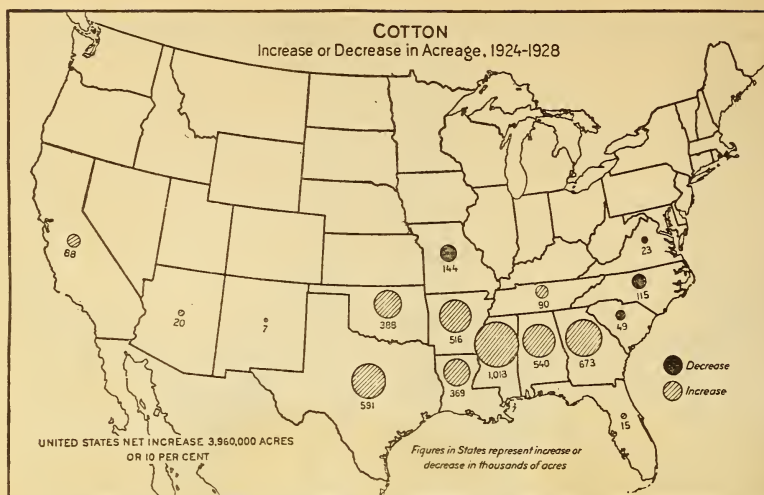


FIGURE 43.—Between 1924 and 1928 a notable recovery in cotton acreage took place in the central Cotton Belt, including Georgia. The acreage continued to decline in South Carolina, and a decline occurred also in North Carolina, Virginia, and Missouri. In the decade 1919 to 1928 cotton acreage in the United States increased over 11,800,000 acres, or more than 35 per cent. The increase was 9,086,000 acres in Texas and Oklahoma, and in the Cotton Belt, to the east, 2,334,000 acres—an increase of 70 per cent in Texas and Oklahoma and of 11 per cent in the eastern Cotton Belt

#### CHANGES IN COTTON PRODUCTION AND YIELD PER ACRE EASTERN AND WESTERN COTTON BELT, 1900-1929

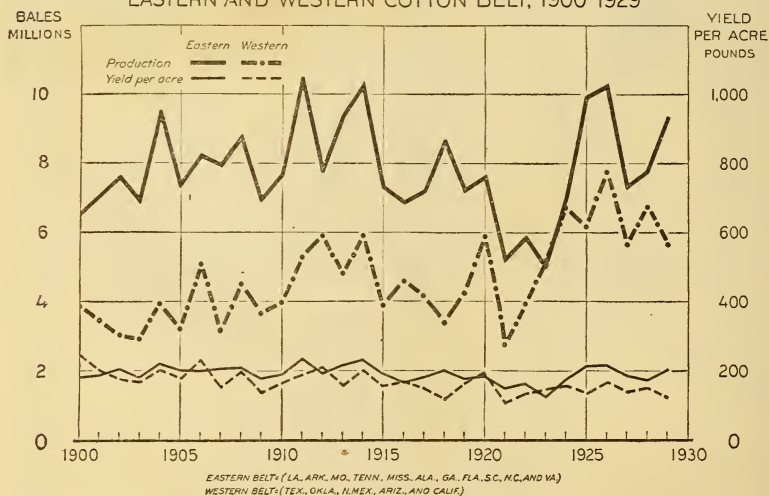


FIGURE 44.—Cotton production in the eastern Cotton Belt has been about stationary in trend for a quarter century, though fluctuating greatly from year to year; in the western portion (Texas and Oklahoma and west) production nearly doubled between the first five years of the century and 1912, but has since increased more slowly, indeed up to 1924 had increased not at all. Acreage fluctuates less and is perhaps more helpful in revealing trends. In the eastern Cotton Belt acreage is 10 to 20 per cent greater than at the beginning of the century, but in the Western Cotton Belt is nearly three times as great. Yield per acre has declined in the western portions of the belt, but in the eastern portion is now about as high as a quarter century ago despite the devastations of the boll weevil

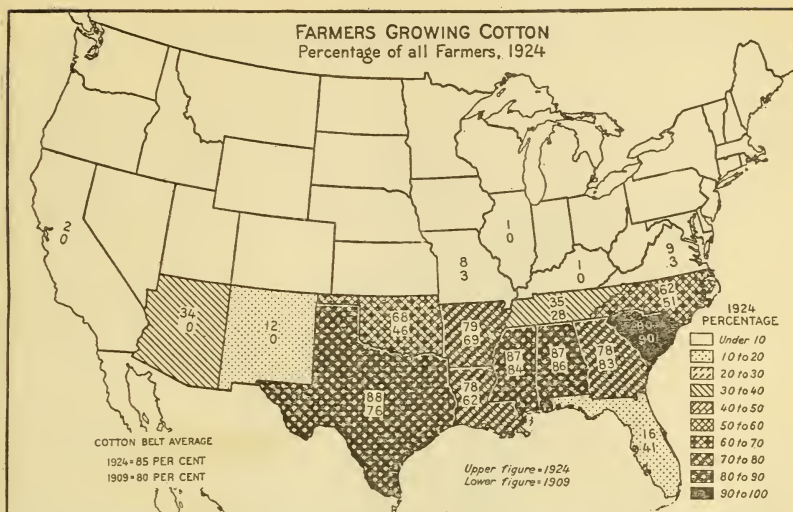


FIGURE 45.—Eighty-five per cent of the farmers in the Cotton Belt grew cotton in 1924 as compared with 80 per cent in 1909. The increase has been notable in the western part of the Cotton Belt, but a marked decline has occurred in Florida and a smaller decline in Georgia. In these States other industries are developing locally—tobacco growing, trucking, fruit growing, and dairying. A third of the farmers in Arizona were growing cotton in 1924, and a small percentage in New Mexico and California. These proportions are now considerably greater

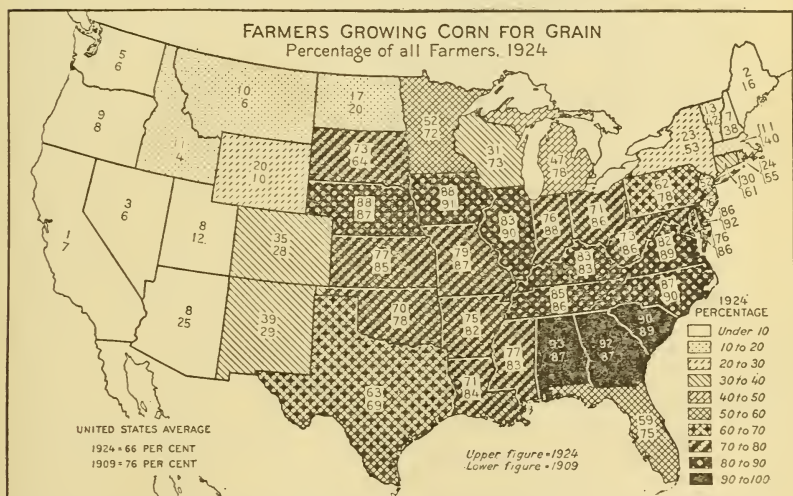


FIGURE 46.—In the eastern Cotton Belt more farmers grow corn than grow cotton. The proportion here, about 90 per cent, is higher than elsewhere in the United States. In the Corn Belt the proportion is somewhat less, and is tending to grow smaller, apparently, except in the north-western section. In the States between the Cotton Belt and the Corn Belt, the proportion is as high as in the Corn Belt, but in the western Cotton Belt only two-thirds of the farmers grow corn, in the Lakes States from one-third to one-half, in New York and southern New England only about one-quarter, and elsewhere only 1 to 20 per cent. In the United States as a whole 10 per cent fewer farmers grew corn in 1924 than was true 15 years earlier

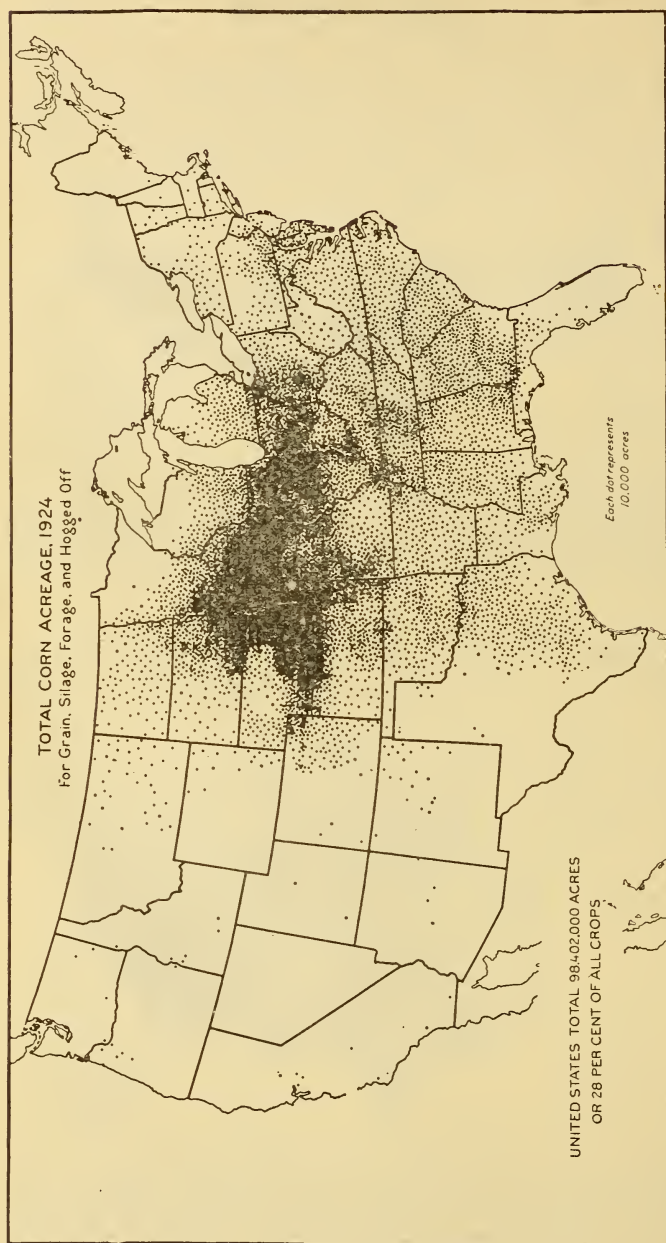


FIGURE 47.—About 60 per cent of the corn of the world is produced in the United States, nearly all east of the line of 8 inches of mean summer rainfall and south of the line of 66° F. mean summer temperature. Nearly 90 per cent of the corn production in the United States is in the Corn Belt, the corn and winter-wheat belt, and in the Cotton Belt. (Fig. 1.) In the Corn Belt, production exceeds 3,000 bushels per square mile and in some counties rises to 5,000 bushels. About half of the corn produced in the United States and nearly one-third of the world's crop is grown in the Corn Belt.



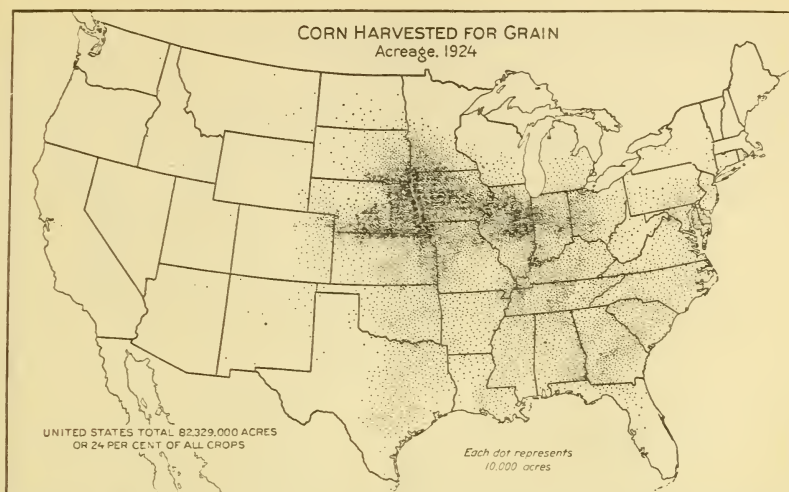


FIGURE 48.—Most of our corn is grown for grain, but along the northern margin of production the corn is mostly cut for silage or for fodder, and in the Corn Belt and northwestward an increasing acreage is hogged or grazed off. It will be seen on the map that only a little of the corn is harvested for grain in New England and New York, in northern Pennsylvania, central Michigan and Wisconsin, in North Dakota and Montana. On the other hand, practically all the corn in the Southern States is grown for grain. In the United States as a whole 84 per cent of the acreage was harvested for grain in 1924

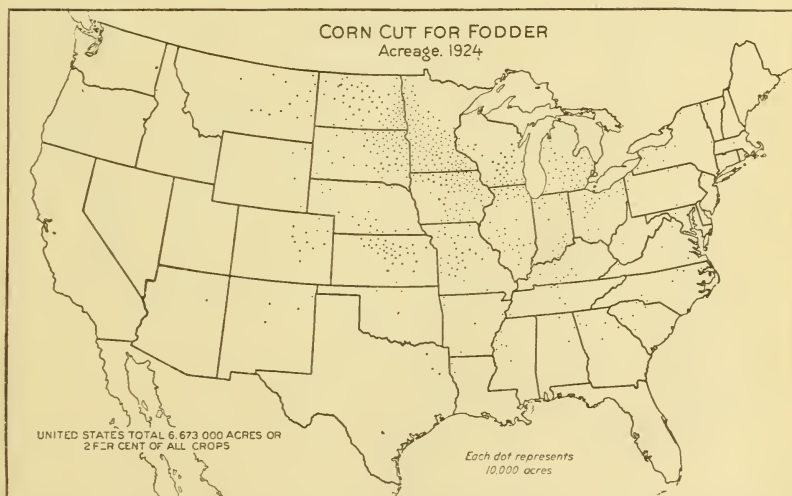


FIGURE 49.—Corn is cut for forage or fodder mostly around the margin of the Corn Belt, especially along the northern margin in the Lakes States and the Dakotas. Here dairying is dominant, or is becoming dominant, and the green corn is fed to dairy cows largely. Elsewhere it is fed mostly to beef cattle, although a little is used to feed sheep and horses. No corn which is also harvested for grain is included in the map. It will be noted that only about 7 per cent of the corn acreage is cut solely for fodder

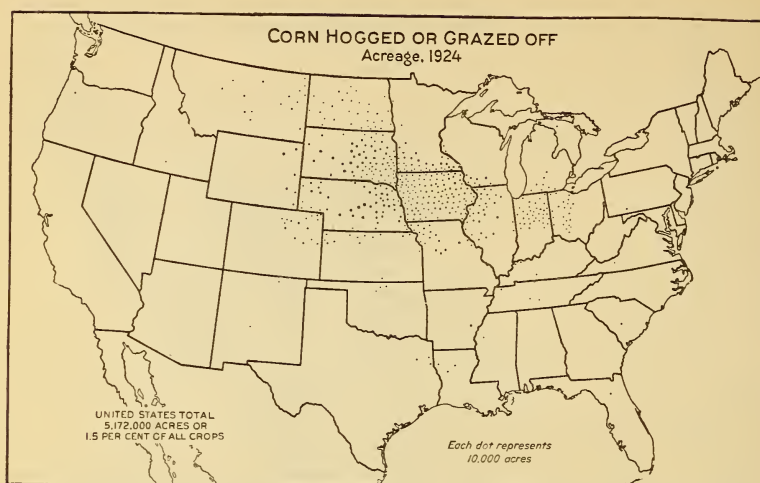


FIGURE 50.—The hogging down of corn (harvested by hogs or cattle) is a practice that has become important only recently and is almost confined to the Corn Belt and the spring-wheat region. The practice increased rapidly during the World War, when farm labor was high in price and hard to obtain. In 1919 about 3,000,000 acres were hogged down, and 5,200,000 in 1924; consequently it appears that the practice has extended since the war. About 5 per cent of the total corn acreage was hogged down in 1924

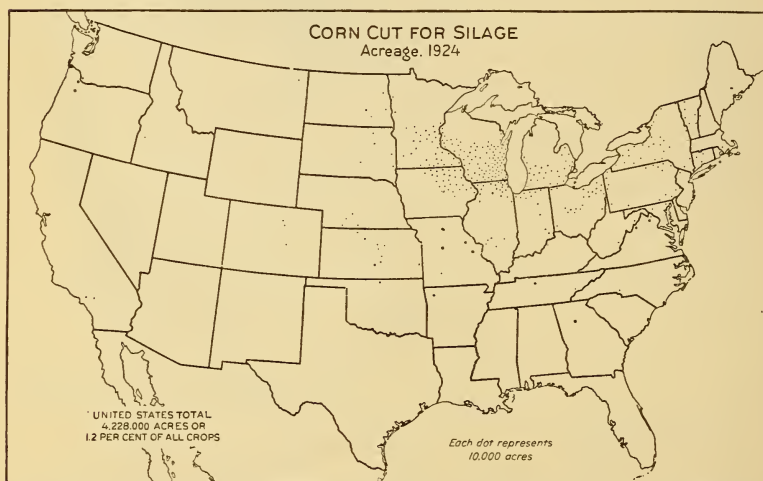


FIGURE 51.—Corn is cut for silage principally in Wisconsin and adjacent portions of Minnesota, Iowa, and Illinois. A smaller acreage will be noted in northern Indiana and Ohio, Michigan, New York, western New England, parts of Pennsylvania, Maryland, and adjacent Virginia. The practice is well started in the territory tributary to St. Louis, Denver, Los Angeles, and Portland, Ore. Silage is fed principally to dairy cows in the winter, consequently the practice is almost confined to dairying districts. But in Missouri, Kansas, and Nebraska the silage indicated on the map is fed also to beef cattle, and some of that in Pennsylvania, Ohio, Colorado, and Idaho is probably fed to sheep. In 1924, 4 per cent of the corn acreage was cut for silage

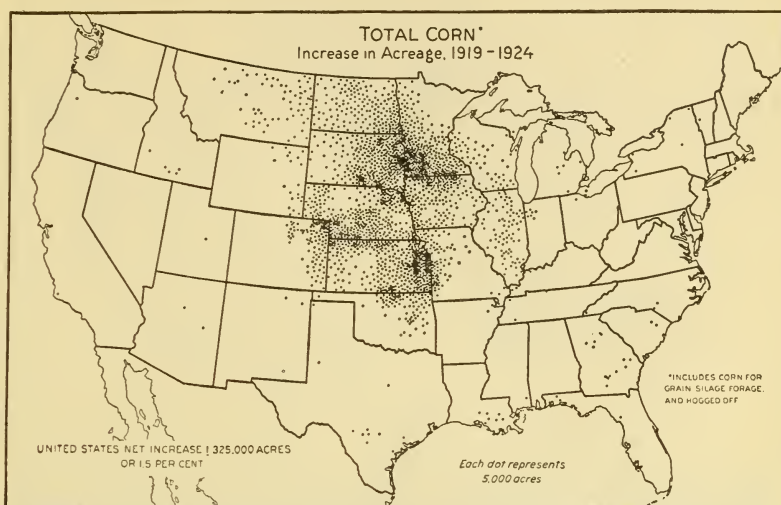


FIGURE 52.—In most of the territory where the acreage of corn harvested increased between 1919 and 1924, the acreage of wheat decreased notably, and in the Dakotas a considerable decrease in hay acreage also occurred. In southwestern Minnesota the increase in corn acreage was, in part, owing to a drought in 1919 and, in part, to drainage of land between 1919 and 1924. Partly as a consequence of the geographic shift in corn acreage, the production of pork and lard has been greater than ever before

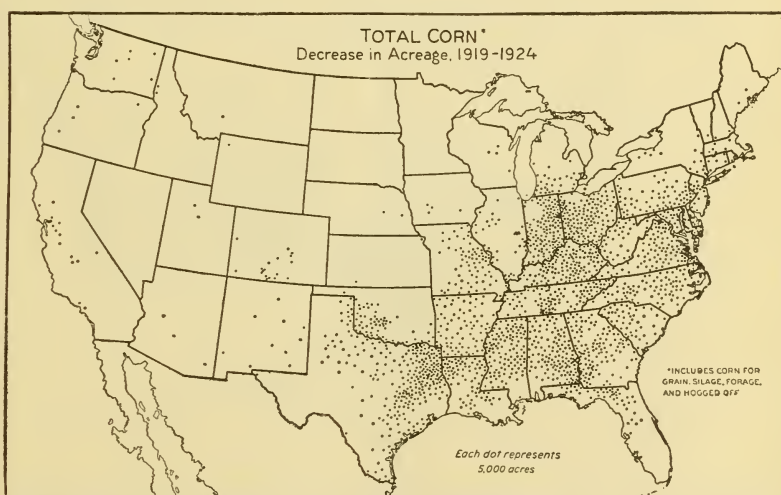


FIGURE 53.—The decrease in corn acreage between 1919 and 1924 was practically confined to the originally forested portion of the United States, where the soils are naturally poorer than in the prairie portion, and was greatest, proportionally, in the Southern States. In the Indiana and Ohio portion of the Corn Belt the decline in corn acreage was only a part of the shift from crops (fig. 16) to pasture, resulting, in part, from the high wages obtainable in the near-by cities. Compare this map with Figure 199



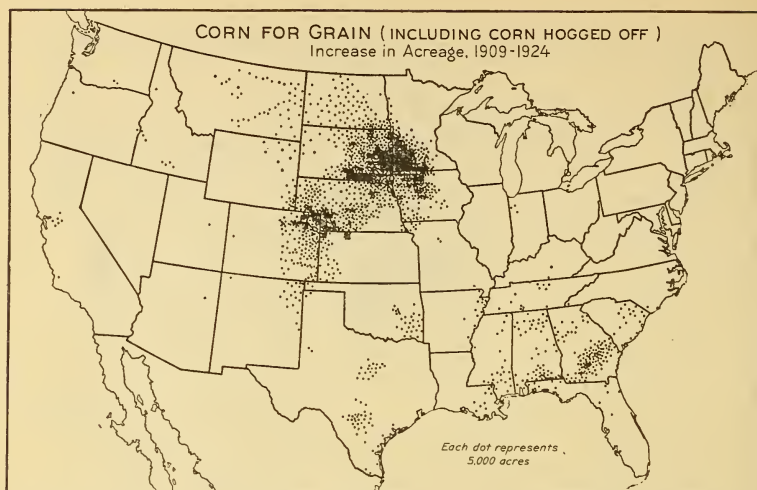


FIGURE 54.—Comparing the acreage of corn for grain in 1924 with the acreage in the pre-war census year 1909, it is clear that a large increase has occurred in the northwestern portion of the Corn Belt and northwestward to the Canadian border. This took place mostly between 1919 and 1924. In addition to corn for grain there has been a large increase in corn for forage in this region. (Figs. 49 and 51.) An increase in corn acreage is indicated also in the lower coastal plain of South Carolina, Georgia, Alabama, and Mississippi, and local increases in Texas, Oklahoma, and northeastern New Mexico, practically all of which occurred between 1909 and 1919. (Fig. 52)

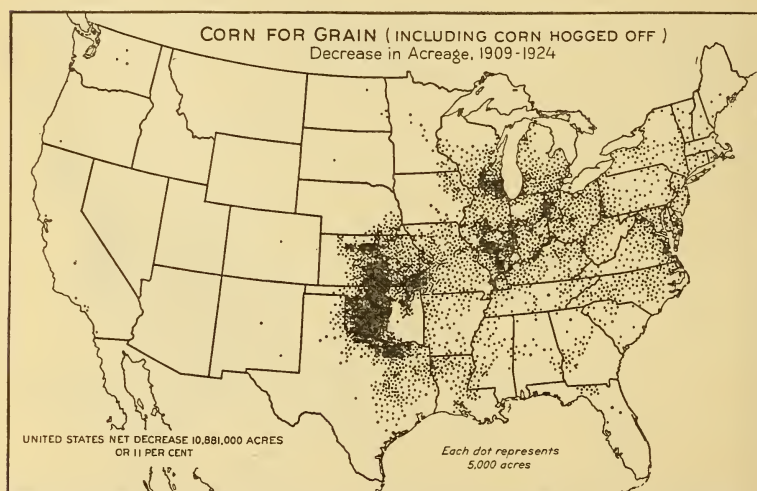


FIGURE 55.—The decrease in corn acreage in eastern and central Kansas and western Oklahoma was very great between 1909 and 1919, and despite an increase between 1919 and 1924, in Kansas especially, the decrease in the 15 years remains notable. A heavy decrease is indicated also for Missouri, Illinois, Indiana, Ohio, and for all other Eastern States north of the Cotton Belt. The decrease was also notable in Texas, Louisiana, and Arkansas; most of it occurred between 1919 and 1924. Part of the decrease in Wisconsin is owing to increasing use of corn for silage. For the United States as a whole the decrease in the 15 years was about 11 per cent

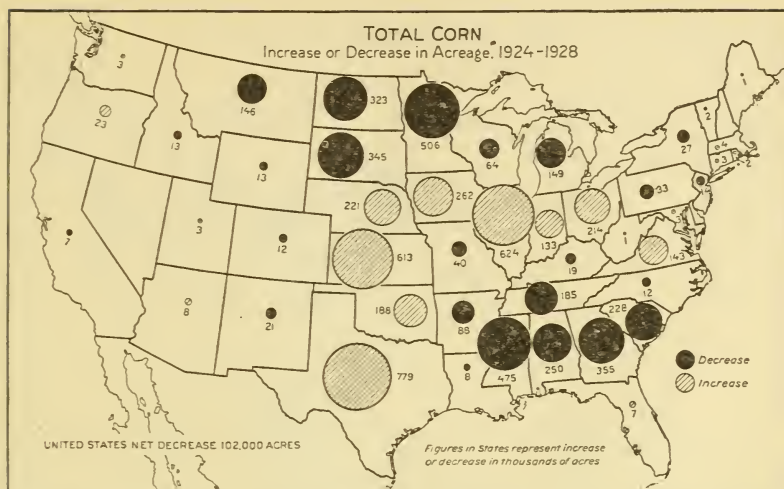


FIGURE 56.—Between 1924 and 1928 the acreage of corn increased in the Corn Belt, notably in Illinois and Kansas. A large increase is indicated also for Texas. On the other hand, a reaction toward a lesser acreage has occurred in the Lakes States and spring-wheat region. In the "old South" the rapid decrease in corn acreage has continued. In 1929 there was only 75 per cent as large corn acreage in the States from Mississippi to South Carolina, inclusive, as in 1919. Corn acreage has continued to decline in Pennsylvania, New Jersey, and New York, but an increase is indicated in Southern New England.

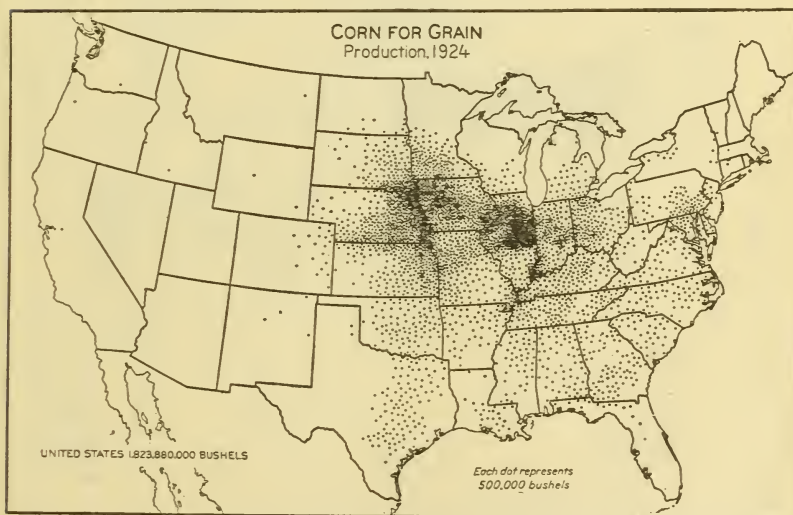


FIGURE 57.—Corn is the great American cereal, constituting about 60 per cent of the tonnage of all cereals grown in the United States, and over 50 per cent of the value. More than half of this crop is produced in the Corn Belt; but corn is the leading crop in value in the corn and winter-wheat belt, and is the all-important cereal in the Cotton Belt. Corn is a very productive crop, yielding in general about twice as many pounds of grain per acre as does wheat, oats, barley, or rye. The climate and soil of the Corn Belt are peculiarly suited to it. Probably no other area in the world of equal extent produces so much food per square mile as does the Corn Belt. The production of corn in 1924 was fully a half billion bushels less than normal.

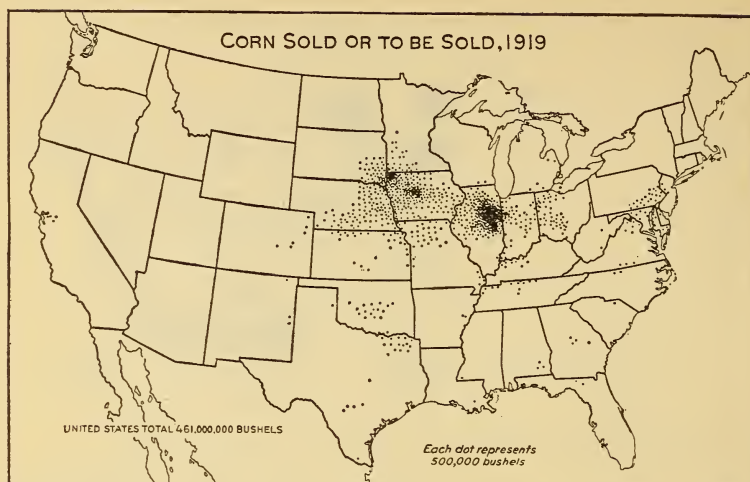


FIGURE 53.—In the Corn Belt most of the corn is fed to hogs, cattle, and horses on the same farm on which it is grown (figs. 197, 172, and 155); but a considerable quantity, amounting to 41 per cent of the crop in Illinois in 1919, and about 30 per cent in Iowa, South Dakota, and Nebraska, is sold to near-by farmers, is shipped to consumers in the South and East, is exported largely through Chicago and the Atlantic ports, or is made into starch and glucose. The corn that the map indicates as sold from the farms in Pennsylvania, Maryland, and several Southern States consists mostly of sales to neighboring farmers. Farms near the water front in Maryland and Virginia, however, ship corn by water to Baltimore, whence it is exported

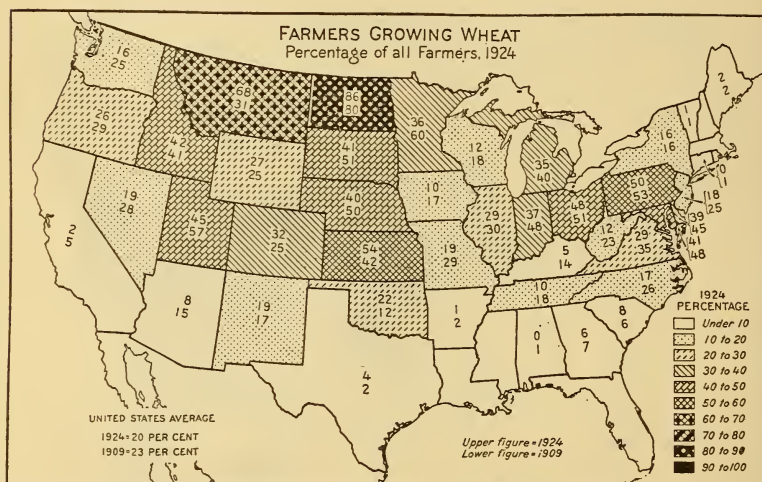


FIGURE 59.—The proportion of the farmers who grow wheat is greater in the spring-wheat region than in the winter-wheat regions. It will be noted that the proportion is almost as high in Ohio, and Pennsylvania (about one-half) as in Nebraska and Kansas. It will also be noted that in most of the States outside the Great Plains the proportion of the farmers growing wheat in 1924 was much less than in 1909. Nevertheless, a notable increase in wheat acreage occurred, but this was mostly in the Great Plains region. (Fig. 65.) The tendency has been to grow fewer crops per farm, and a larger acreage of each crop. In the case of wheat this is partly because of geographic shifts in production



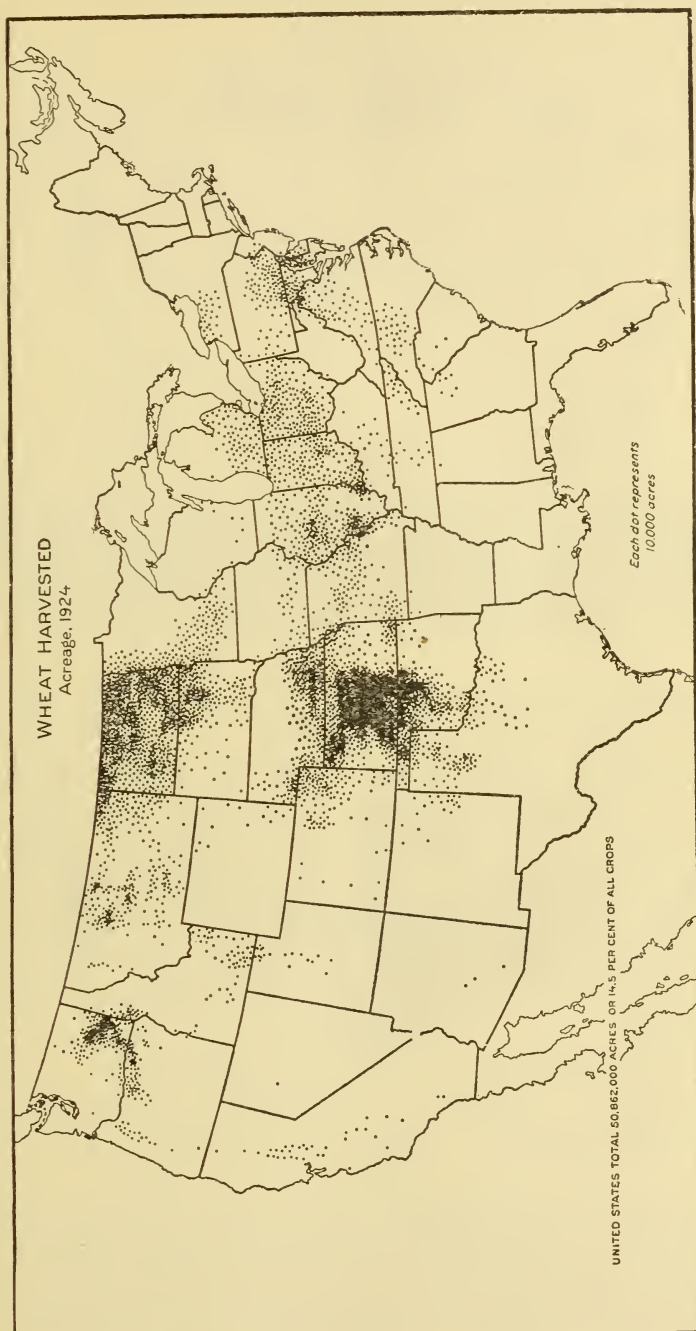


FIGURE 60.—The United States produces about one-fifth of the world's wheat, as compared with three-fifths of the world's corn and cotton. The wheat crop of the United States, measured in bushels, is usually about one-third of the corn crop. Sixty per cent of the wheat acreage was in five Great Plains States in 1924. Kansas was the leading State, with one-fifth of the Nation's acreage, whereas North Dakota had a sixth. The wheat of these subarid or semiarid Plains States is hard, high in gluten, and especially suitable for making bread; most wheat grown in the Eastern States, is softer, and especially suitable for making pastry.

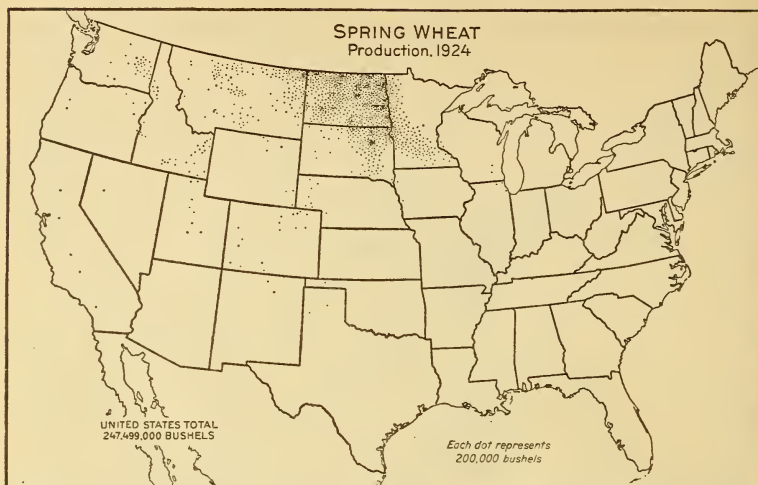


FIGURE 61.—Most of the spring wheat is grown in the spring-wheat region, where it constituted 40 per cent of the acreage of all crops in 1924. A secondary center of production is located in the subhumid portions of Washington and Oregon. Scattered areas will be noted in Idaho, Utah, and Colorado. Practically no spring wheat is now grown east or south of Lake Michigan. The southern boundary of the spring-wheat region is determined partly by the northern boundary of winter wheat, which is, in general, more productive and more profitable where it can be grown. The northern limit of spring wheat is approximately the mean summer temperature of 57° F., which is found in the United States only in the western mountains

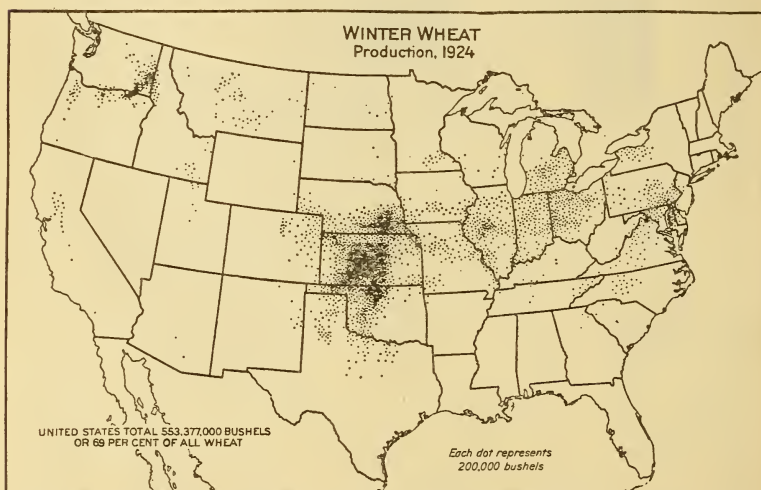


FIGURE 62.—There are three winter-wheat areas, (1) the hard winter-wheat region of Kansas and adjacent parts of Oklahoma and Nebraska, with an arm extending eastward into northern Illinois, (2) the soft winter-wheat region which includes all the remaining eastern districts, and (3) the white (very soft) wheat districts of the Pacific Coast States. The southern boundary of the eastern belt follows the isotherm of 72° F. during the month preceding harvest (June 15); and although some wheat is grown south of this line, it frequently suffers severe damage from rust. The northern frontier of winter wheat follows, in a general way, the mean winter isotherm of 17°, which extends in a northwesterly direction from Wisconsin diagonally across southern Minnesota, South Dakota, and Montana

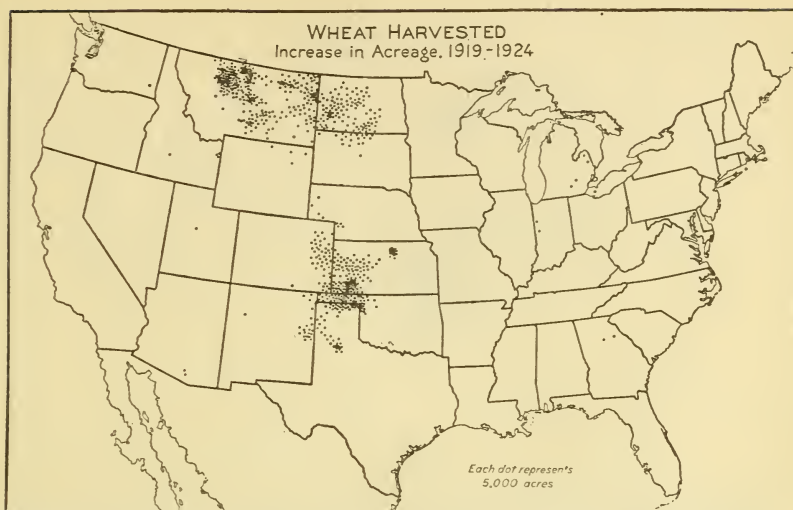


FIGURE 63.—The acreage of wheat harvested in 1924 was greater than in 1919 in only two sections—in the western frontier section of the hard winter-wheat region and in the western portion of the spring-wheat region. In this latter section the increase was nominal, as 1919 was the driest year ever known in this territory, and only about half the acreage sowed was harvested. The increase of acreage in the western portion of the winter-wheat region and maintenance of acreage in the spring-wheat region was owing partly to the introduction of the tractor and larger units of machinery, which have greatly reduced the cost of production

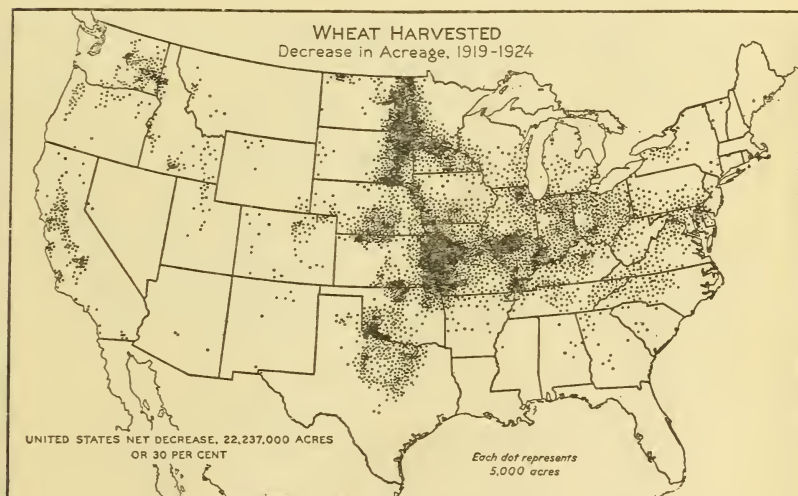


FIGURE 64.—In 1919 the largest wheat acreage in the Nation's history was harvested, in part the result of guaranteed war-time prices. In 1924, on the other hand, the acreage harvested was the smallest for seven years. Although the map, therefore, exaggerates the decrease from the standpoint of normal years, the location of the decreasing areas is approximately correct. Wheat acreage has increased in the Great Plains States and decreased almost everywhere else. Especially notable has been the decrease in Minnesota and the eastern portions of the Dakotas and in the corn and winter-wheat region, which extends from eastern Kansas across Missouri and southern Illinois to Virginia and New Jersey



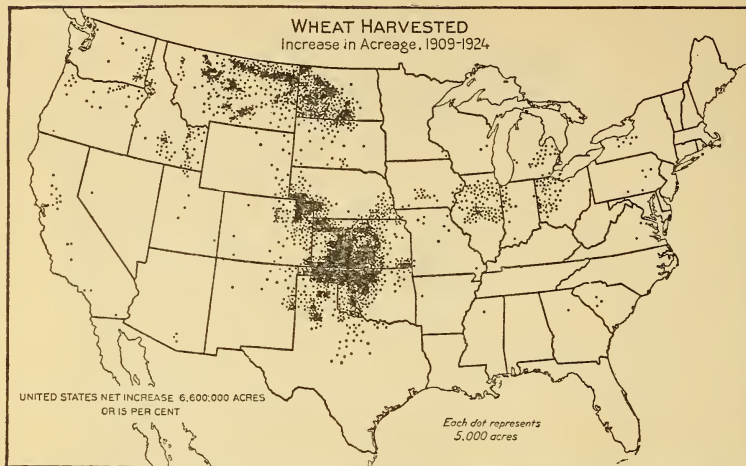


FIGURE 65.—Because of abnormal conditions in 1919 it is interesting to compare wheat acreage in 1924 with the acreage in 1909. Two regions of great increase stand out—(1) the hard winter-wheat region of Kansas and western Oklahoma, with arms projecting northwestward into eastern Colorado and western Nebraska and southwestward into Texas; (2) the semiarid portion of the spring-wheat region, extending from the Missouri coteau westward to the Rocky Mountains, with interruptions in Montana. Grain production has now advanced almost across the Great Plains in these two sections. A smaller increase in wheat acreage is indicated in northern Illinois, northwestern Ohio, southern Idaho, and in the Palouse-Walla Walla districts of eastern Washington and Oregon and of northern Idaho.

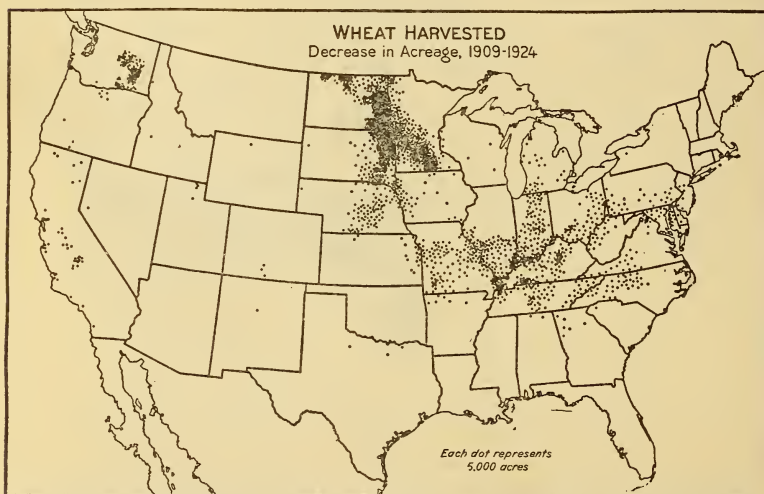


FIGURE 66.—A great decrease in wheat acreage occurred in Minnesota and the eastern portions of the Dakotas between 1909 and 1924. The northern portion of this area is becoming a part of the hay and dairy region and the southern portion a part of the Corn Belt. (Fig. 1.) A less dense decrease, but almost as great proportionately, occurred in the corn and winter-wheat belt. Corn also decreased in this belt (fig. 55) and idle land increased. (Fig. 22.) A notable decrease in wheat acreage also occurred in the drier portion of the Columbia Plateau wheat region in eastern Washington. In 1909 the Great Plains States had 46 per cent of the Nation's wheat acreage; in 1919 about 55 per cent; in 1924, 64 per cent; and in 1929, 67 per cent.

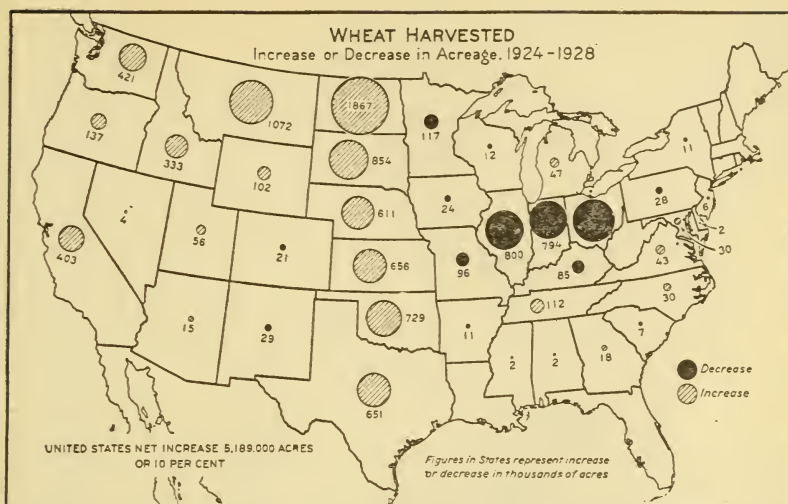


FIGURE 67.—Since 1924 wheat acreage has increased greatly in the Great Plains States. The increase in these States between 1924 and 1928 was about 7,100,000 acres and between 1909 and 1928 was about 19,500,000 acres. A notable increase took place also between 1924 and 1928 in the Pacific Coast States and Idaho. On the other hand, in the eastern Corn Belt States there was a heavy decrease in wheat acreage. The decrease in wheat acreage in the eastern half of the United States (Minnesota to Louisiana and east) was about 2,700,000 acres between 1924 and 1928, and was over 9,500,000 acres between 1909 and 1928; in the western half of the country the wheat area increased 8,400,000 acres between 1924 and 1928, and 21,000,000 acres between 1909 and 1928.

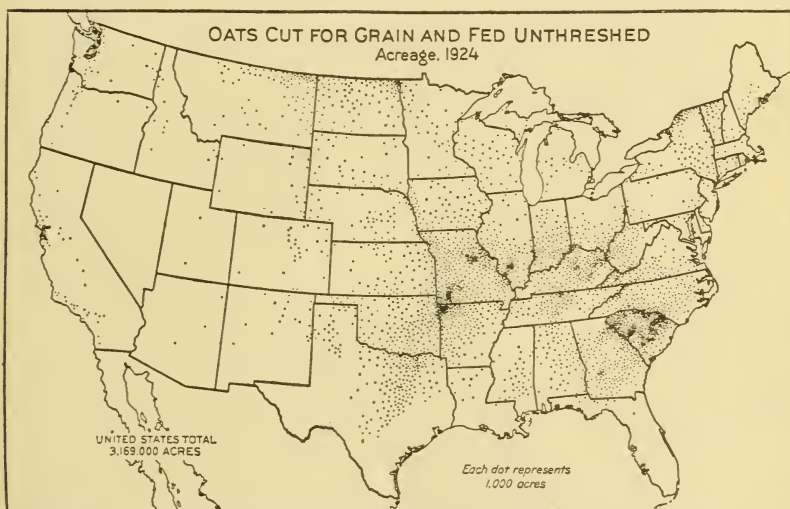


FIGURE 68.—In the corn and winter-wheat belt and in much of the Cotton Belt, also along the northern border of the United States, it is more or less common practice to cut oats when ripe or nearly ripe and feed to stock in the bundle. The census of 1925 obtained statistics for the first time on the acreage so cut. It will be seen that the practice is most common in South Carolina and in Missouri and northwestern Arkansas. The acreage of oats cut and fed unthreshed constituted in 1924 about 8 per cent of the total oats acreage in the United States, excluding oats for hay. (Fig. 69)

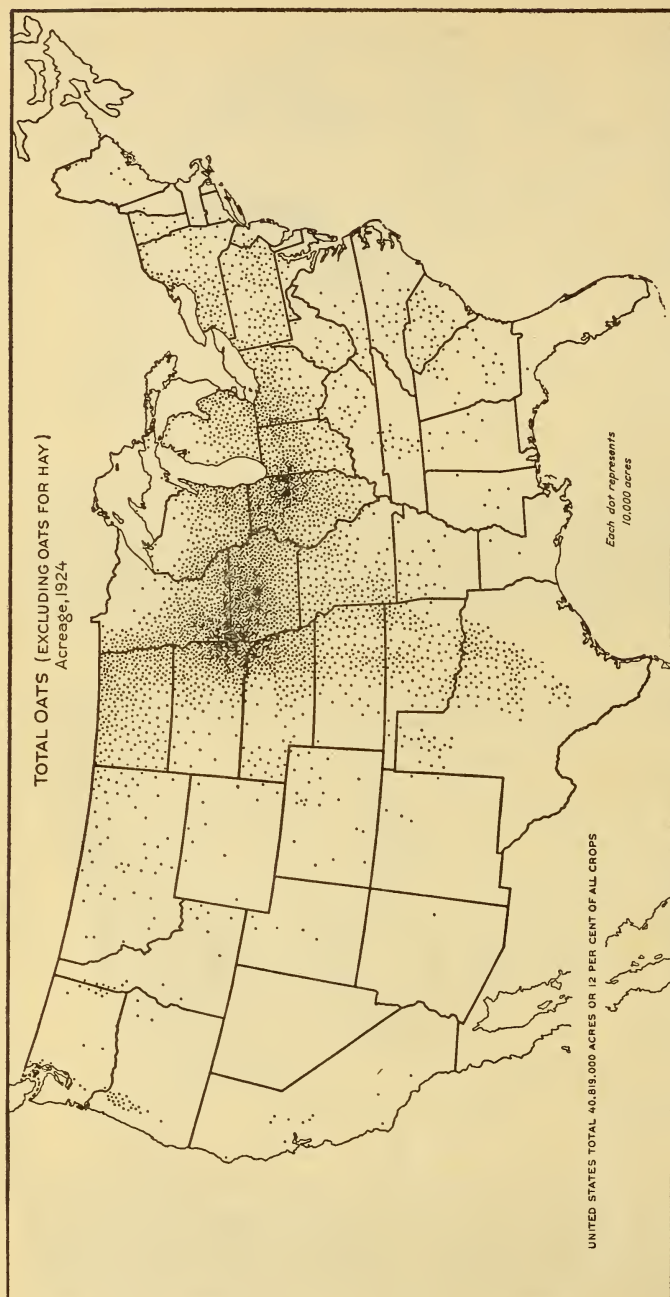


FIGURE 69.—The oats belt of the United States consists of a crescent-shaped area extending from New England to North Dakota and Montana. An arm extends southwardly from this belt across eastern Kansas and Oklahoma to south-central Texas. The acreage represented includes oats cut for grain when ripe or nearly ripe and fed unthreshed. Oats prefer a cool, moist climate, and this large acreage in the Corn Belt and southwesterly is owing more to the need of feed for horses, or of a spring grain nurse crop for clover than to particularly favorable climatic conditions. In the Southern States most of the oats are fall sown, but in the North the oats are sown in the spring.



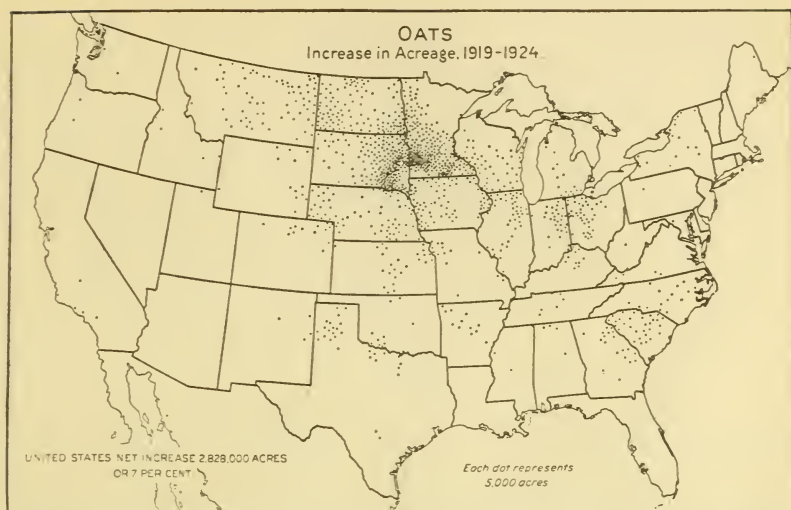


FIGURE 70.—The increase in oats acreage between 1919 and 1924 occurred mostly in the spring-wheat region and along the northern and western margin of the Corn Belt, accompanying the increase in corn (fig. 52) and hogs (fig. 198). It will be noted that the increase in oats acreage exceeded the decrease. This net increase of 2,828,000 acres is about equal to the acreage in 1924 of oats cut for grain when ripe or nearly ripe and fed unthreshed, much of which was, probably, not reported in the 1920 census. It is possible that the actual net increase in the oats area was little more than 1,000,000 acres

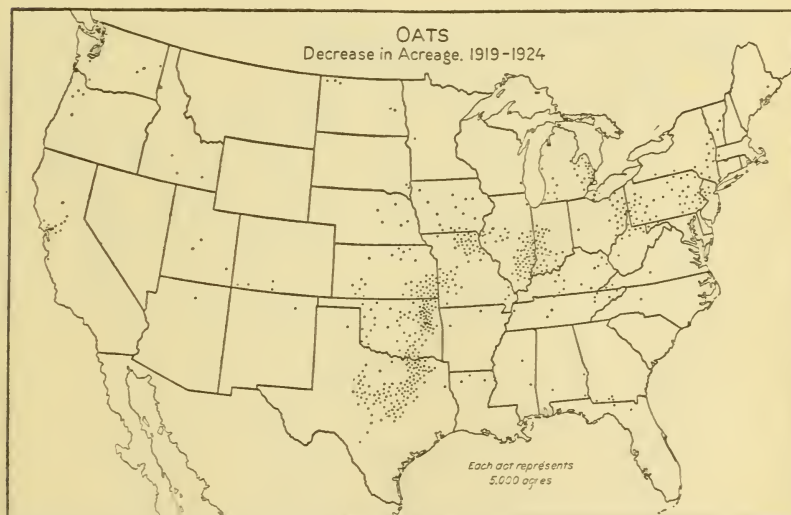


FIGURE 71.—The decrease in oats acreage between 1919 and 1924 was small compared with wheat, and was practically confined to the southern margin of the oats-growing region. The figures used for 1924 include oats cut for grain when ripe or nearly ripe and fed unthreshed, which question was not included in the 1919 census schedules. It is probable that a part of the oats used in this way was not reported under oats for grain in the census returns for 1919, or was reported under hay and forage; consequently, the decrease in acreage shown in the map is doubtless smaller than actually occurred

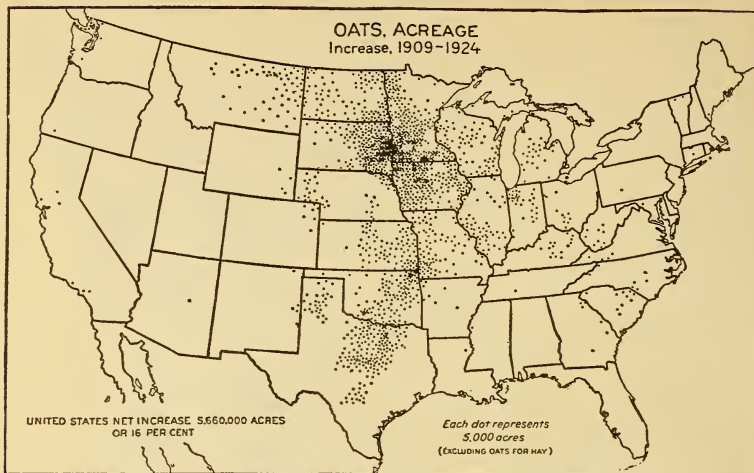


FIGURE 72.—The increase of oats acreage between the pre-war year 1909 and the year 1924, took place mostly between 1919 and 1924 in the Northwestern States; but mostly between 1909 and 1919 in the Southwestern States. In fact, the acreage, in the southwestern arm of the oats belt was greater in 1919 than in 1924. (Fig. 71.) It appears that the increase in oats acreage was much greater between 1919 and 1924 than between 1909 and 1919. This is surprising in view of the decrease in horses, and can only be partially accounted for by enumeration of more oats fed unthreshed in the census for 1924 than in the census for 1919, when it was not specifically asked for. (The 1924 figures used in this map include oats cut for grain when ripe or nearly ripe and fed unthreshed)

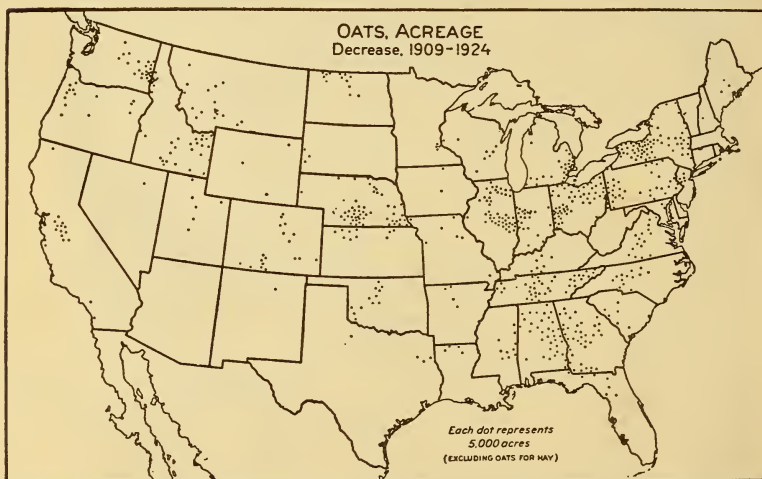


FIGURE 73.—The areas of decrease in oats acreage between 1909 and 1924 are mostly small and widely scattered. The acreage of oats decreased in New York, northern Ohio, Pennsylvania, and south along the piedmont into Alabama, in most of Tennessee, in northern Illinois, in parts of Nebraska, and locally in Colorado, Idaho, and the Pacific Coast States. But the decrease in these areas was more than balanced by the increase in the Great Plains region and as far east as Michigan (fig. 72), the net increase for the Nation being over 5,000,000 acres, or about 16 per cent. It appears that oats are being used to an increasing extent in feeding cattle and swine, especially in Iowa, Minnesota, and the Dakotas. (The 1924 figures used in this map include oats cut for grain when ripe or nearly ripe and fed unthreshed)

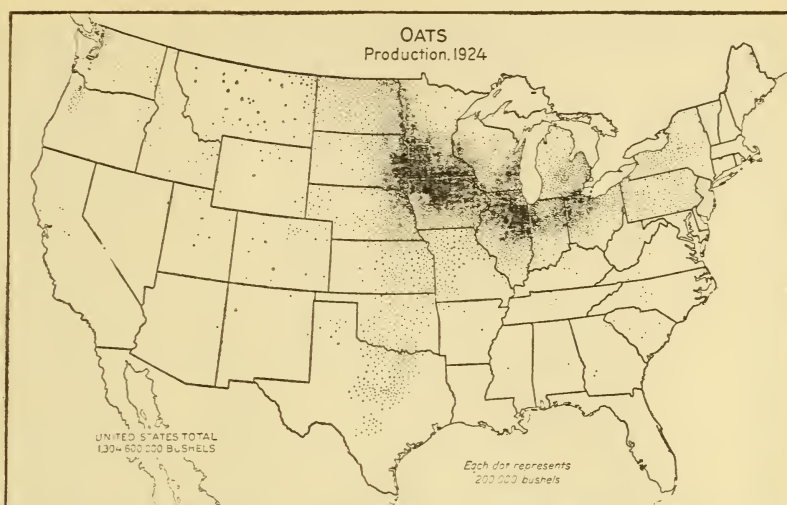


FIGURE 74.—With the decline of oats production in New York, Pennsylvania, and northeastern Ohio during the years of the World War, the Corn Belt has become the oats belt also, to an increasing extent. (Fig. 57). But it is only in the northern portion of the Corn Belt, especially west of Illinois, that most of the oats are produced; and the oats area overlaps and includes in the Lakes States most of the hay and dairying belt to the north, and, in attenuated form, much of the spring-wheat region to the northwest. The oats crop, like the corn crop, appears to be moving westward and northward. Note the small quantity of oats harvested for grain south of the Potomac and Ohio Rivers

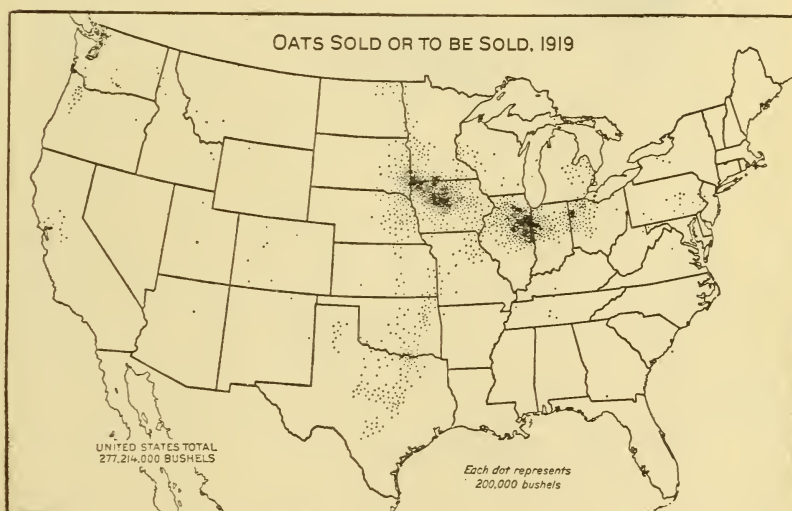


FIGURE 75.—Oats were sold from the farm in 1919 in the same two districts in northern Illinois and in northwestern Iowa and adjacent localities that corn was sold. (Fig. 58.) The resemblance even extends to the lesser districts in Indiana and Ohio. The districts in which oats are sold in Texas and Oklahoma, however, are more extensive than the districts in which corn is sold. In 1919 nearly 300,000,000 bushels of oats were sold by farmers, mostly for shipment to the cities and to southern and eastern farmers. This was about 30 per cent of the crop. More recent data on sales of the crops than those in the 1920 census are not yet available



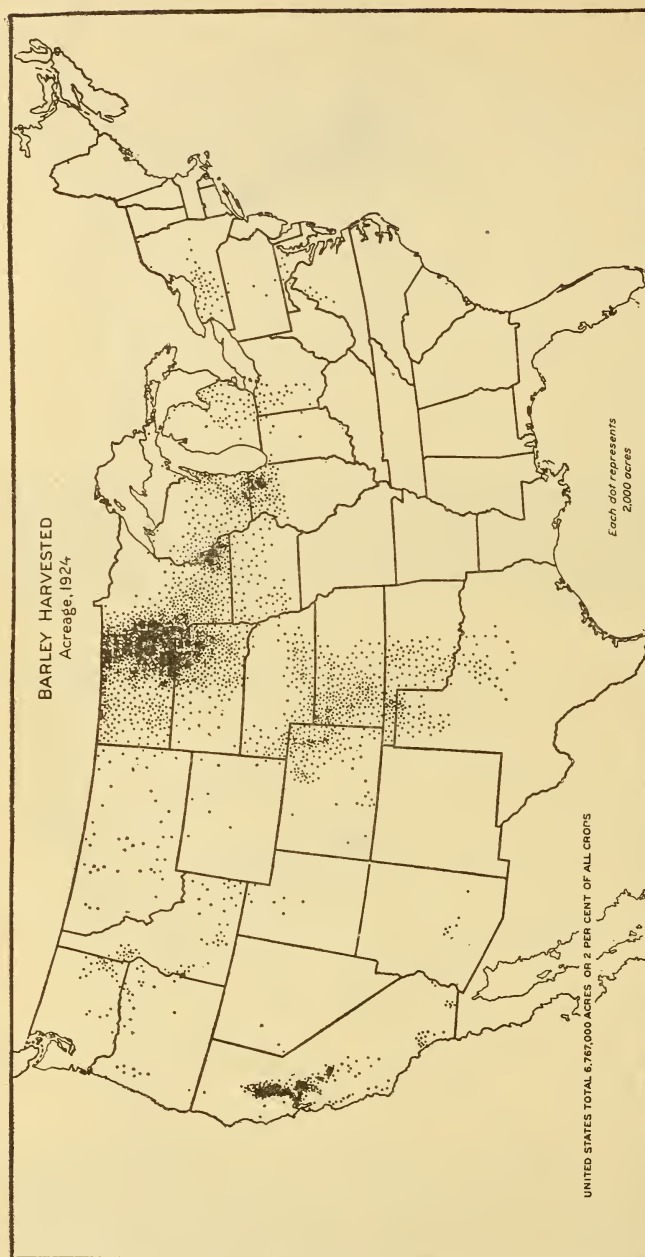


FIGURE 76.—A dot on this map represents only one-fifth as much acreage as on the maps of corn, wheat, and oats. Barley is a minor crop in the United States compared with these crops, except in the spring-wheat region of the valleys of California, and in southeastern Minnesota, Wisconsin, and northern Illinois, where barley is raised extensively. Less dense areas may be noted in the hard winter-wheat region and in eastern Michigan and the western New York. Some kinds of barley are very resistant to drought and heat and largely replace corn as grain for feed in the Southwest; other kinds are cold resistant and replace corn in the Northwest.

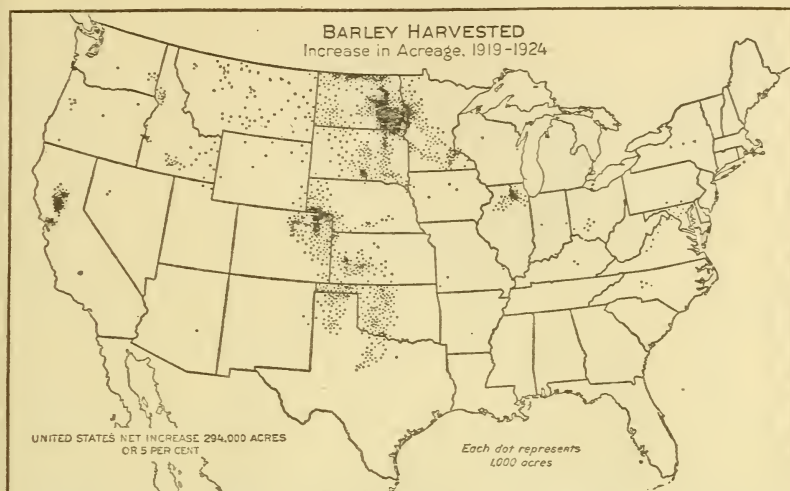


FIGURE 77.—The increase of barley acreage after the World War, like that of wheat, occurred mostly in the Great Plains, both in the spring-wheat and the hard winter-wheat regions. However, locally important increases occurred also in northern Illinois and northern California. Drought-resistant varieties of barley have been found well adapted to the climate and soils of the Great Plains and the tendency is for barley to be grown to an increasing extent in the United States, as in southern Europe, and northern Africa, along the desert's edge. In California the crop is grown mostly on the winter's moisture and is harvested in the dry spring or early summer

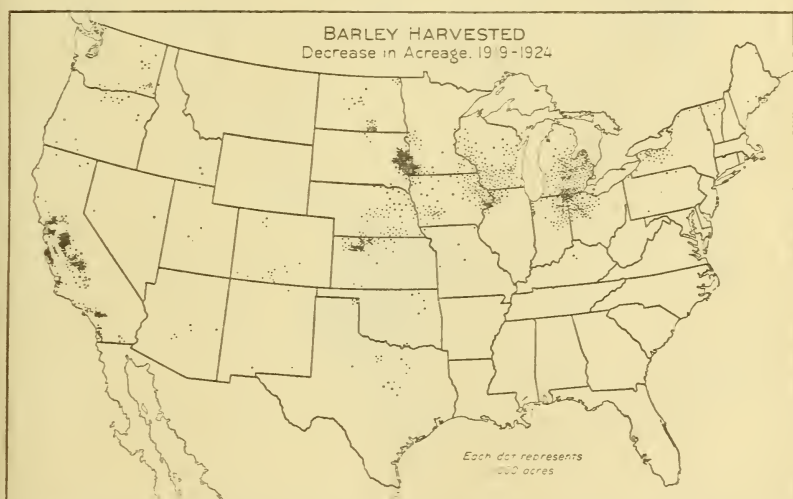


FIGURE 78.—The decrease in barley acreage between 1919 and 1924 occurred principally in Michigan and northwestern Ohio, in Wisconsin and Iowa, in a few counties of eastern South Dakota, and in California south and east of San Francisco Bay. In general, these are the older barley-growing districts, which have found competition difficult with the more extensive methods of farming in the Great Plains region. The decreased use of barley for brewing and increased use for feed, has also tended, doubtless, to put the emphasis on quantity rather than quality

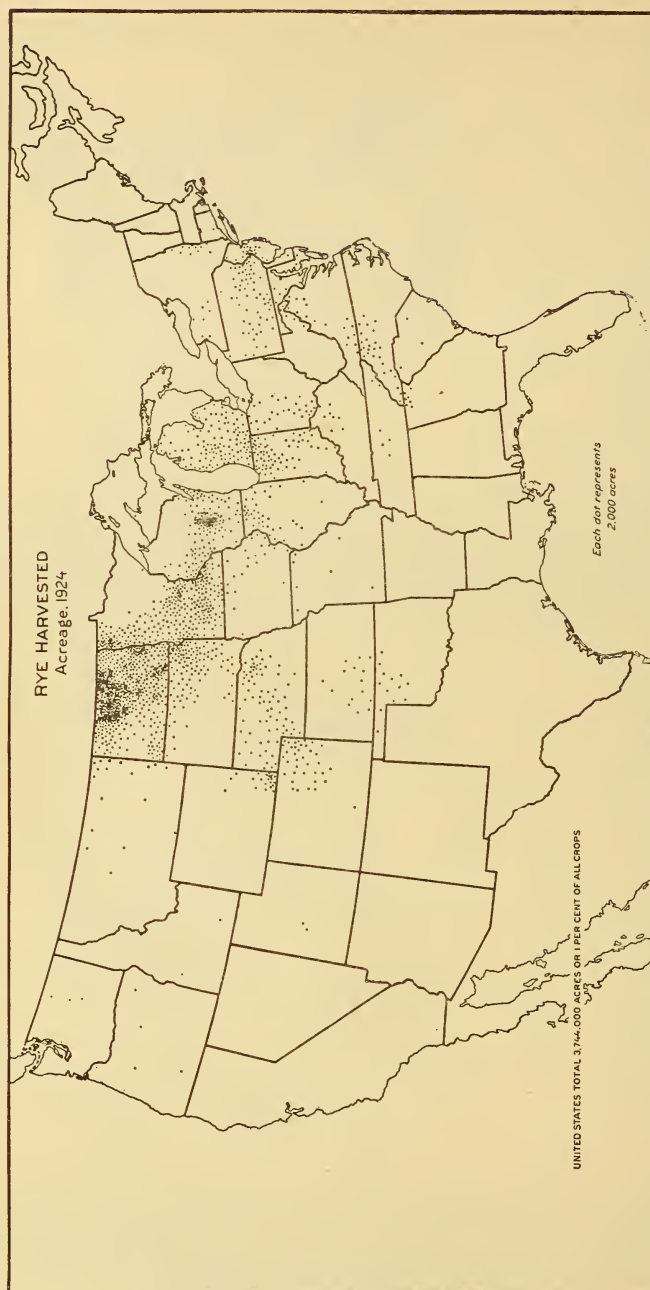


FIGURE 79.—Rye is a crop peculiarly adapted to sandy or depleted soils, and prior to the World War was grown principally in the sand<sup>§</sup> sections of Michigan, Wisconsin, and Minnesota, with a smaller acreage on rather poor soils in Pennsylvania and eastern New York. Stimulated by high prices, production increased rapidly during the war in the spring wheat region, until by 1919 one-third of the Nation's acreage was found in North Dakota. This was still true in 1924, but the acreage was only half as great as in 1919. The production of rye in western Nebraska and eastern Colorado shows that it is a very drought-resistant crop. Like wheat and barley, the rye crop appears to be shifting toward the Great Plains region.



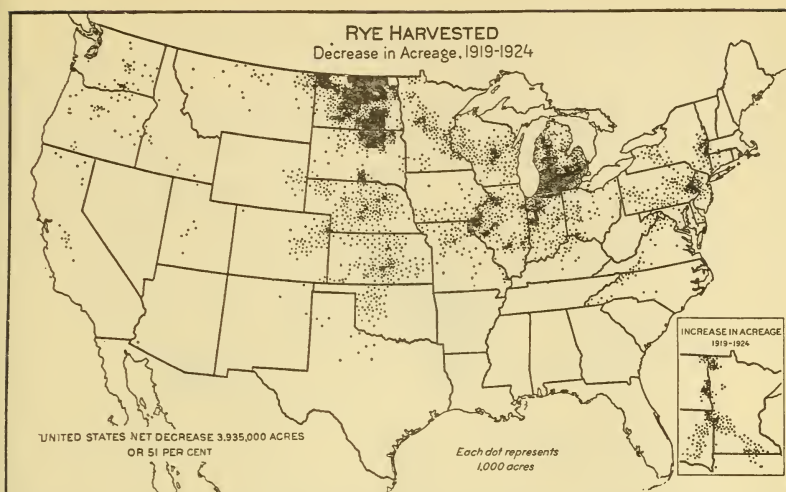


FIGURE 80.—The decrease in rye acreage between 1919 and 1924 was almost universal. The heaviest decreases took place in North Dakota and Michigan, but the decrease was relatively as great in many other districts. Practically the only increase was in a few counties in Minnesota and in the eastern portions of the Dakotas. (See inset map.) As agriculture in Europe recovered from the World War, the exports of rye have declined to about one-half the 1919-1922 level. The production is now nearly back to the pre-war level, but half the crop is now produced in the Great Plains region, while production in the Great Lakes States and to the eastward is only half so great as before the war

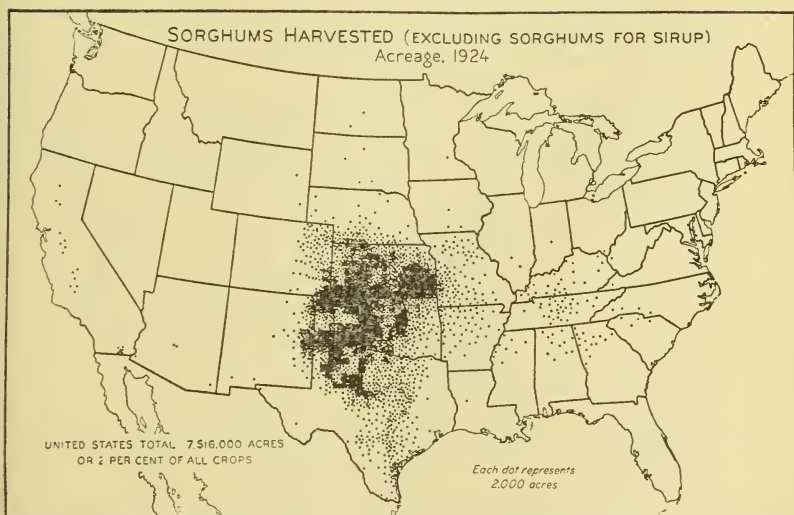


FIGURE 81.—The grain sorghums are, perhaps, our most drought-resistant crops. The expansion of acreage in the southern Great Plains area during the first two decades of the century was extraordinary. From 1899 to 1909 the acreage in the United States increased sixfold, and between 1909 and 1919 it more than doubled. But in 1924 the acreage was slightly less than in 1919 owing in large part to the advance of cotton production. (Fig. 39.) The sorghums have now an established place in the farming of the southern Great Plains, where the dry climate is too severe for corn production, especially the hot winds, which interfere with fertilization and often wither the corn crop. (Fig. 53.) (Acreage includes sorghums for grain, silage, hay, or fodder)

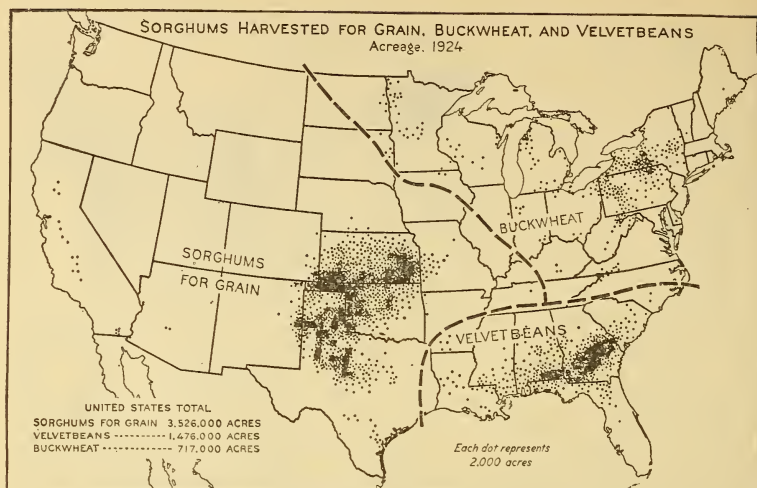


FIGURE 82.—The sorghums are harvested largely for grain in the sorghum area proper, which includes southern Kansas, western Oklahoma, and northwestern Texas, together with a few adjacent counties in the Staked Plains portion of New Mexico. The small acreage in California is grown mostly for grain. Buckwheat production is practically confined to the Appalachian area and the Lakes States. It is peculiarly adapted to districts having cool, moist summers and sour soils. The velvetbean crop has spread rapidly in the lower coastal plain portion of the Southeastern States. The greatest acreage is in Georgia, but the crop is now grown as far west as Louisiana and as far north as North Carolina

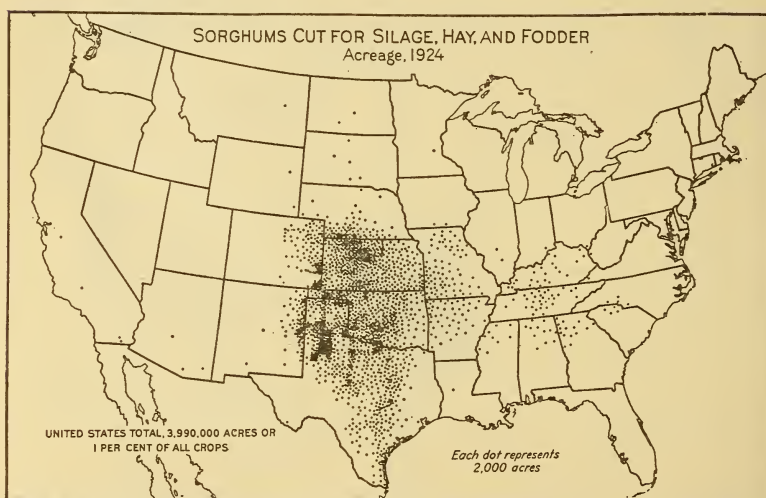


FIGURE 83.—Sorghums are grown for forage farther north, west, and south than for grain. Sorgo (sweet sorghum), which is not commonly grown for grain, is frequently used for forage far to the east in the Cotton Belt and the corn and winter-wheat belt. The acreage of sorghums grown for forage is about the same as that grown for grain. The average yield per acre of sorghum forage was 1.7 tons in 1919 in the southwestern area, compared with less than 1 ton per acre for corn in this area and 1.2 tons for corn in the entire United States. Yield-per-acre figures are not available for 1924

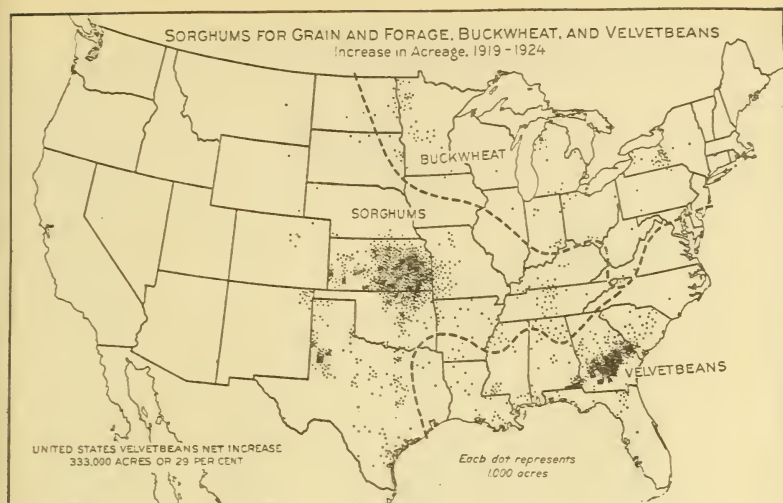


FIGURE 84.—A notable increase in the acreage of sorghums took place in the eastern, more humid half of Kansas and adjacent section of Oklahoma between 1919 and 1924. A much smaller increase occurred in the recently settled counties along the Texas-New Mexico boundary. Buckwheat acreage increased in Minnesota and the eastern portions of the Dakotas, where it is practically a new crop, and in central New York and in several counties in Ohio, Indiana, and Michigan. The increase in velvetbean acreage was notable in the middle coastal plain of Georgia, and the crop is now advancing onto the piedmont soils. Velvetbeans are a new crop in most of South Carolina and Louisiana.

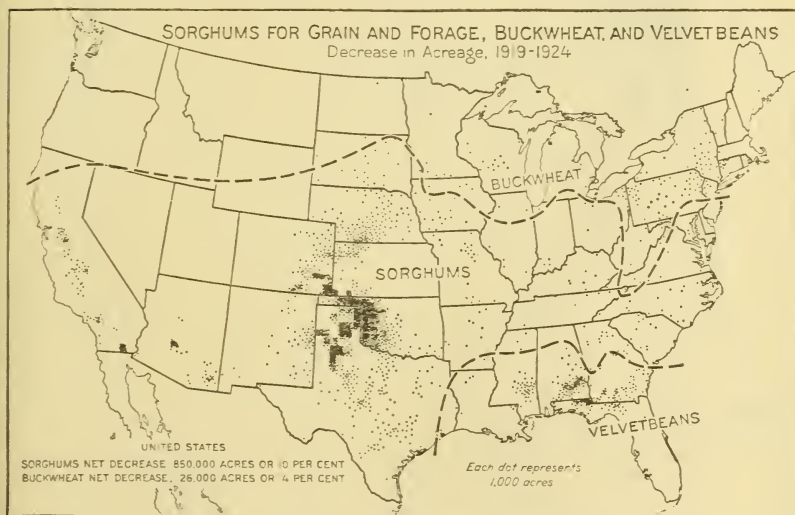


FIGURE 85.—The acreage of the sorghums decreased greatly in western Oklahoma between 1919 and 1924 and in a number of counties in Texas. The decrease was even greater relatively in California and Arizona, and there was much less use of sorghums for forage in eastern Colorado, Nebraska, and South Dakota. Buckwheat acreage decreased in most of New York and Pennsylvania and in Wisconsin. Prior to 1918 the Nation's acreage of buckwheat had remained almost stationary for 50 years. The acreage of velvetbeans decreased in northern Florida and in portions of Alabama, Mississippi, and Georgia, but the decrease was small compared with the increase. (Fig. 84)



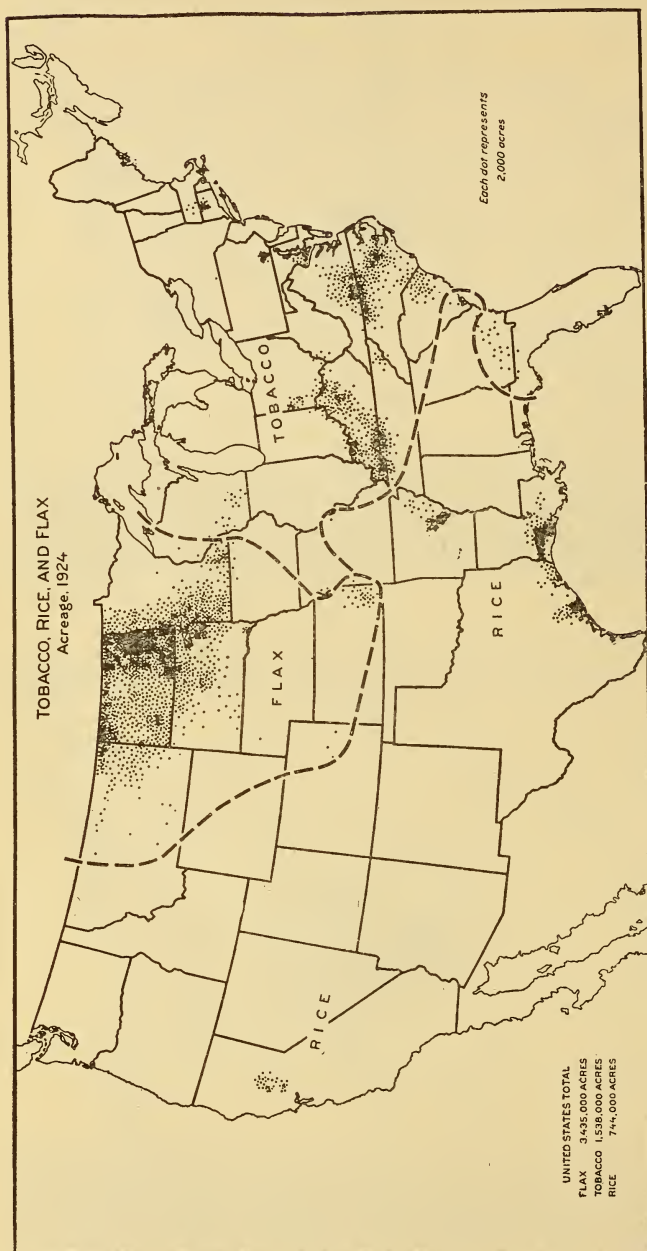


FIGURE 86.—Nearly 90 per cent of the tobacco acreage is in six States—Kentucky, North Carolina, Virginia, Tennessee, South Carolina, and Ohio. But there are also important centers of production, especially of certain types, in southern Maryland, in Lancaster County, Pa., in the Connecticut Valley, and in southern Wisconsin. Tobacco is very sensitive to soil conditions, but the requirements vary with the different types. Rice production is now largely confined to the coastal prairies of Louisiana and Texas, the prairie district of eastern Arkansas, and the flat valley of the Sacramento River in California—all areas of heavy subsoils which hold the irrigation water. Flax is grown in the spring-wheat region and in eastern Kansas. The concentration in the spring-wheat region is owing to climatic conditions.

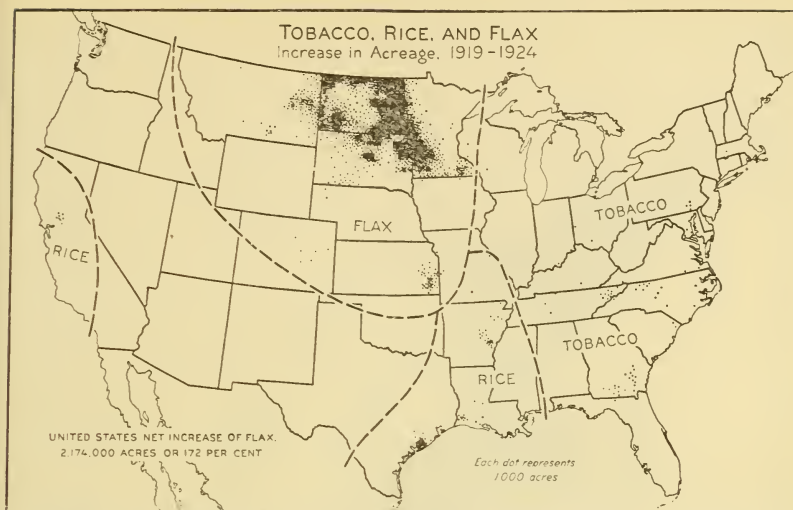


FIGURE 87.—The acreage of tobacco increased between 1919 and 1924 in several counties in Georgia, North Carolina, and Tennessee, and in Lancaster County, Pa., but the decrease elsewhere was much greater. (Fig. 88.) Rice acreage increased in Arkansas, in two or three counties each in Louisiana and Texas, and in one county in California, but the decrease elsewhere was much greater. Flax, on the other hand, almost trebled in acreage between 1919 and 1924, owing largely to rising prices. The use of linseed oil in paints, linoleum, and many other products is increasing rapidly, and the Nation grows only half enough flax to meet the demand. The other half comes mostly from Argentina and pays a high import duty

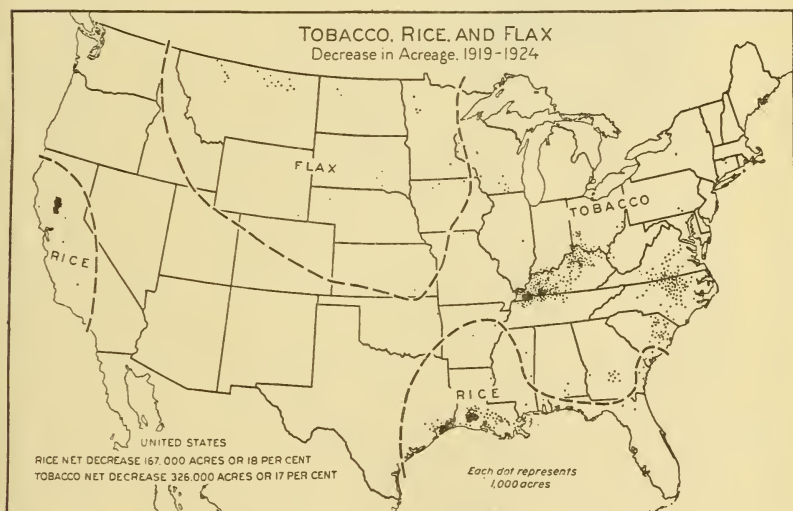


FIGURE 88.—Tobacco acreage decreased notably between 1919 and 1924, as a result of falling prices after the World War, in Kentucky, Virginia, and the Carolinas, and the decrease extended into Ohio and Wisconsin. Rice acreage likewise decreased, as a result of falling prices, in most of Louisiana, in much of Texas, and in several counties in California. Flax acreage, on the other hand, decreased only slightly in a few counties, mostly in northern Montana. Unlike most other crops, the production of flax was profitable after the war, primarily because of the deficit relative to the Nation's needs

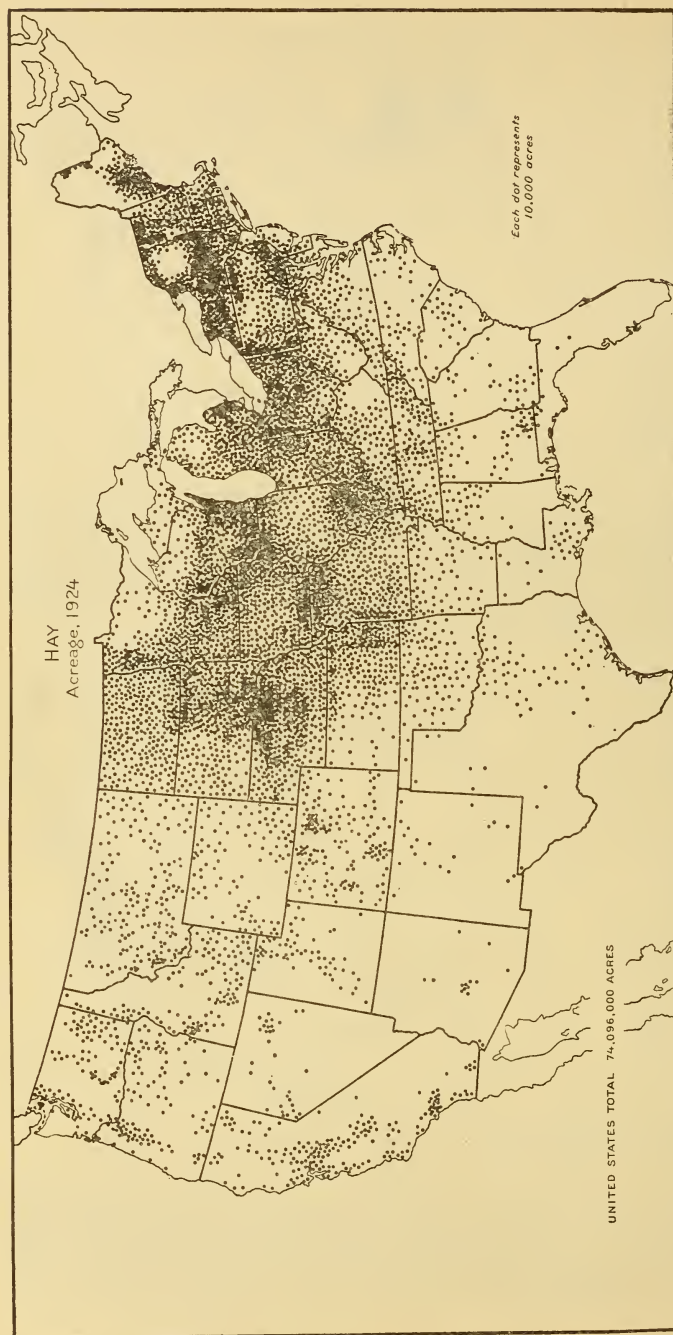


FIGURE 89.—No crop is so widespread as hay in the United States, largely because so many plants with varying climatic requirements, are made into hay. Although a little hay is grown everywhere, it is an unimportant crop in the Cotton Belt and in the southwestern country, except in the irrigated districts. Most of the hay is produced in the hay and dairy belt, in the Corn Belt, particularly around its margins, and in the corn and winter-wheat belt. Timothy and clover are the dominant hay crops in these regions. (Figs. 102 and 103.) Locally hay (mostly alfalfa) is very important in the irrigated districts of the West, and a considerable quantity is grown in the spring-wheat region (mostly wild hay). (Figs. 98 and 105)



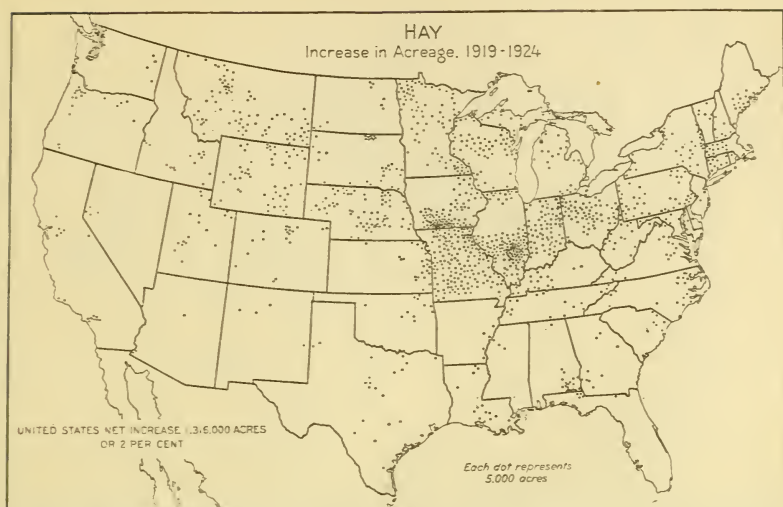


FIGURE 90.—The increase of hay acreage between 1919 and 1924 occurred mostly around the margin of the Corn Belt, in the Northeastern States and in the Lakes States. An increased acreage will be noted, in the newly settled portions of Wyoming and Montana—probably wild hay mostly. The increase in southeastern Alabama is largely of peanut hay. This widely scattered increase in hay acreage—in some places replacing wheat, the acreage of which declined rapidly after 1919, in some places corn, in other places oats—was partly the result of efforts to grow a crop that would require less labor, for wages have seemed very high to the farmer since the World War

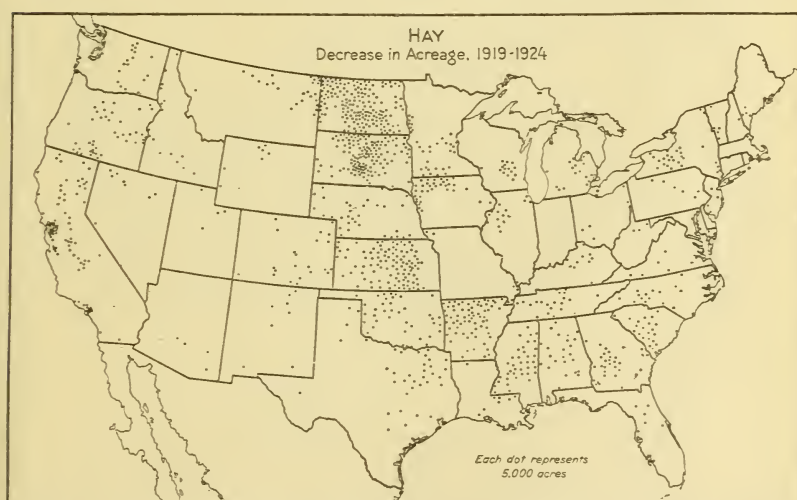


FIGURE 91.—The decrease in hay acreage between 1919 and 1924 was greatest in the Great Plains States from North Dakota to Oklahoma. In the Dakotas this is doubtless owing to the plowing up of the native-hay meadows for grain production; in Kansas a series of bad seasons for alfalfa may be the major reason. Smaller decreases, but relatively as important, will be noted in the Southern States and Pacific Coast States. There are fewer livestock in the South and Pacific Coast States than at the close of the World War, and in the Pacific Coast States there is less grain hay and more alfalfa, which is more productive—that is, production per acre has increased

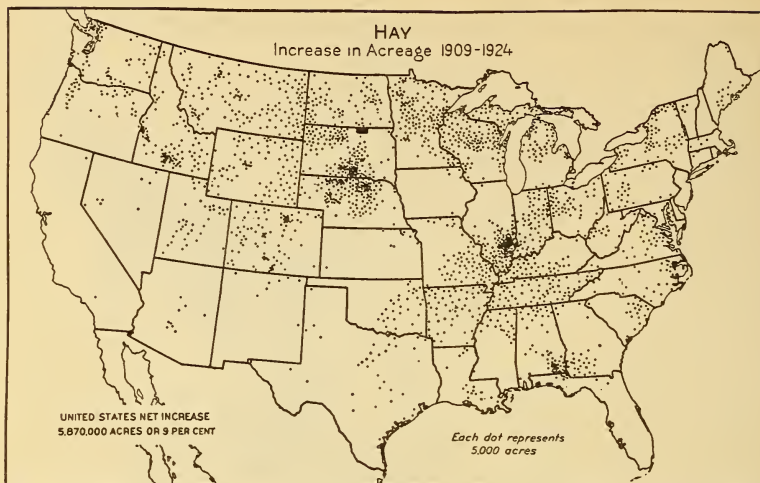


FIGURE 92.—Comparing hay acreage in 1924 with that in the pre-war year, 1909, it appears that the increase has been almost universal, except in California, in southern New Hampshire and Vermont, southern New York and New Jersey, and in a belt which includes southern Michigan, northern Illinois, Iowa, Kansas, and western Oklahoma. East of this belt from Detroit to Amarillo, the increase in hay acreage is doubtless due largely to the less labor needed to grow hay than to grow more intensively cultivated crops; west of the belt it is owing largely to the expansion of the farming area, particularly in the upper Lakes and spring-wheat regions, and in the Rocky Mountain valleys

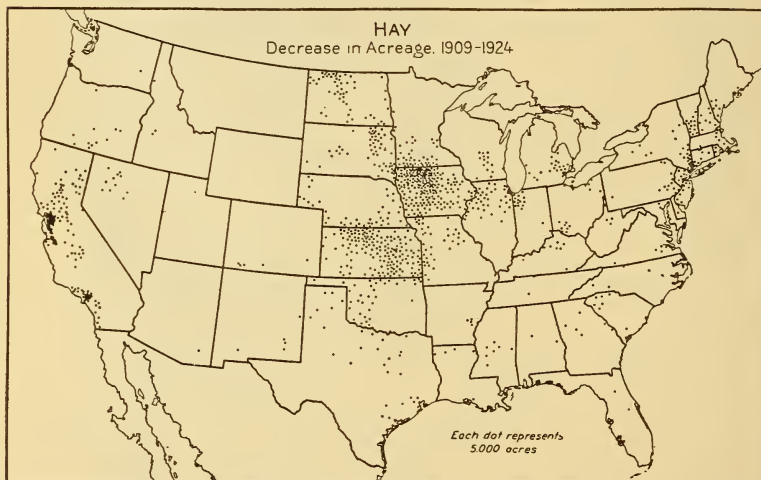


FIGURE 93.—The belt of decrease in hay acreage between 1909 and 1924, extending from southern Michigan across Iowa and Kansas to the Texas Panhandle, can be explained in part by an increased wheat acreage in central Kansas and northern Illinois, by an increased oats acreage in Iowa and northwestern Missouri, (to which is added an increased corn acreage in northwestern Iowa), and by a decrease in total crop acreage in southern Michigan, western Missouri, and eastern Kansas, which may mean that many hay meadows were not cut in 1924, but used only for pasture or lay idle. (Figs. 65, 72, 54, 20, 24, and 22.) The notable decrease in California around San Francisco Bay and Los Angeles is probably due to urban growth, and elsewhere in the State, largely to horticultural development

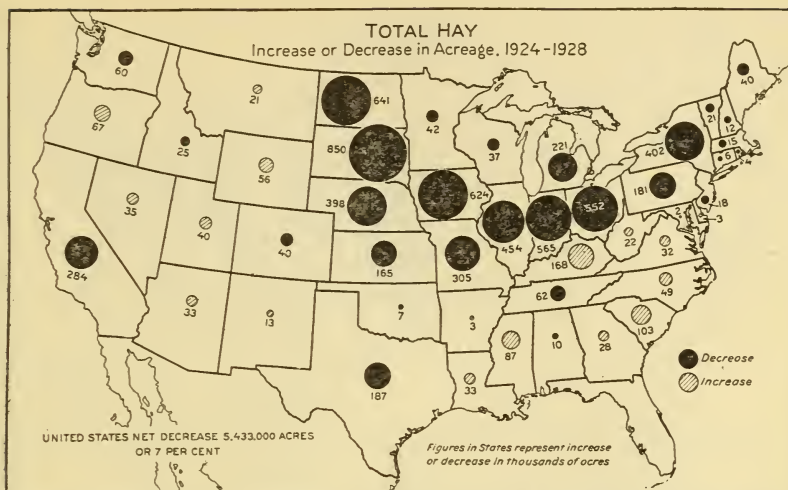


FIGURE 94.—The decline in hay acreage between 1924 and 1928 was notable in a crescent-shaped area extending from New England through Ohio and Iowa to North Dakota. In these States, except the Dakotas, the acreage of hay had increased between 1919 and 1924. Until 1924, apparently, the increased consumption of hay by dairy cattle had counterbalanced the decreased consumption by horses and beef cattle. In nearly all other States, with notable exceptions in California and Texas, the acreage of hay increased between 1924 and 1928. The increase in the South Atlantic States, Mississippi, and Louisiana is especially encouraging with reference to livestock production. The decrease in California is in acreage, not production, as alfalfa production increased more than grain-hay production decreased.

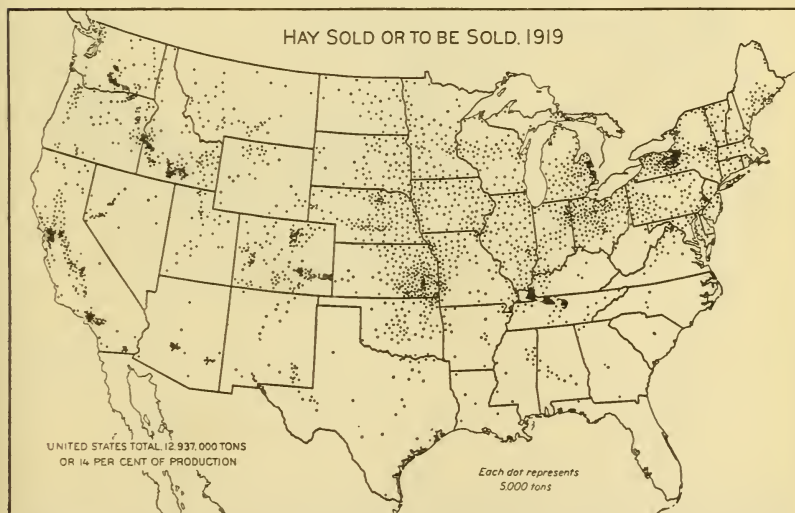


FIGURE 95.—Unlike corn and oats, hay is sold in nearly all the areas where it is produced. This is to be expected, since hay is a much more bulky crop and more costly to transport and store per unit of value. Also, as may be expected, the sales are somewhat greater near certain large cities. The major commercial hay districts are central New York, northern Ohio, eastern Michigan, eastern Kansas, and the irrigated areas of the West. It appears that the alfalfa grown in these western districts enters into commerce in larger proportions than do the timothy and clover hays of the East. The total sales of hay in 1919 constituted 14 per cent of the production.



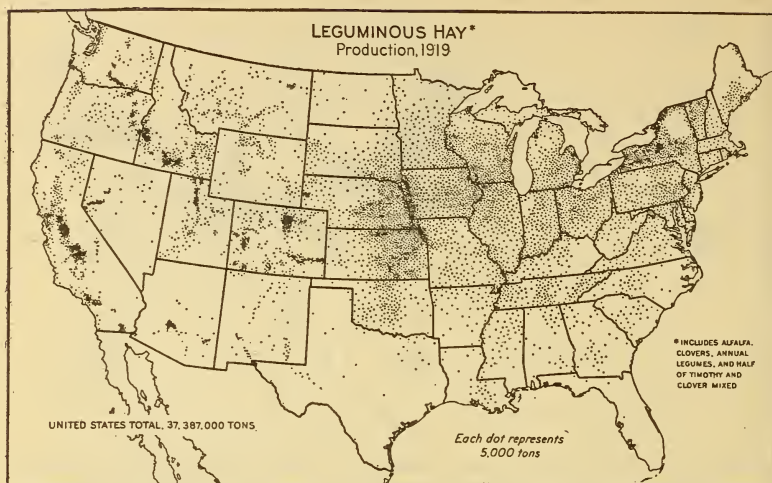


FIGURE 96.—A large proportion of the hay produced in the West is alfalfa, a leguminous plant; and in the South, likewise, cowpeas, soybeans, peanuts and velvetbeans are legumes that constitute a large proportion of the hay made. However, the acreage of all hay crops is small in the South. In the North Central and Northeastern States the principal legume hays are red clover, alsike clover, and sweetclover. The first two are often grown mixed with timothy. All leguminous hays normally are higher in protein and mineral matter than nonleguminous hays, and they tend also to increase the nitrogen supply in the soil

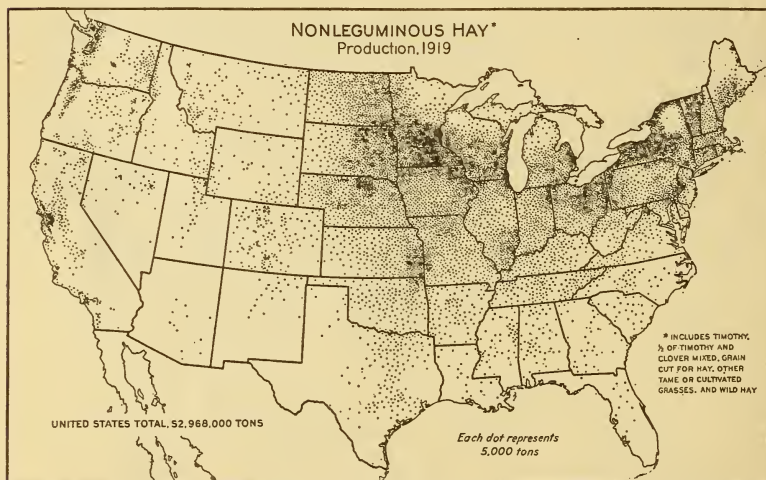


FIGURE 97.—The production of nonleguminous hays is greater than of leguminous hays in the hay and dairy region, in the Corn Belt as far west as the first tier of counties east of the Missouri River, and in the spring-wheat region. The principal nonleguminous hay in the central and eastern Corn Belt and in most of the hay and dairy region is timothy; but in most of New England the bent grasses, often mixed with redtop and other grasses, are more important, while in the spring-wheat region, the wild grasses, mostly *Andropogon* and *Stipa*, provide much of the hay. In the far Western States the wild grasses, the small grains cut green, and timothy are the principal nonleguminous hay plants

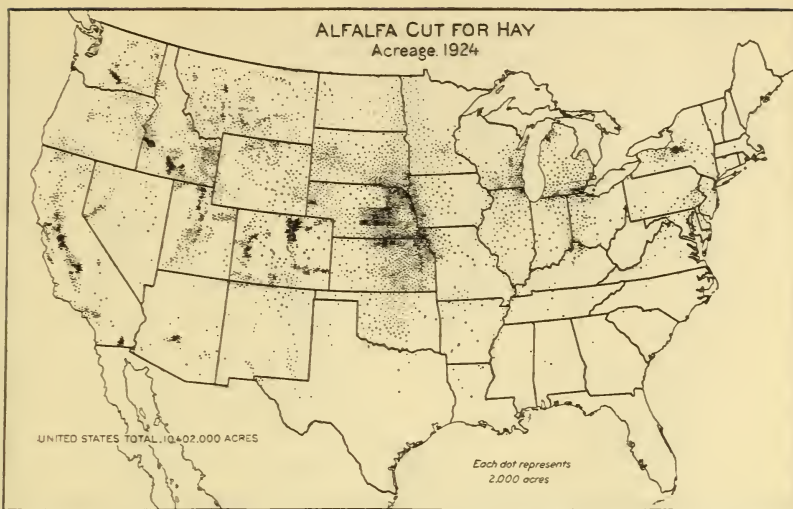


FIGURE 98.—Alfalfa demands soils that are not acid, and it is most easily cured in a climate that is not rainy during the summer. Consequently, it thrives best in the arid Western States, where it is grown mostly under irrigation, and in the subhumid Great Plains States; it also thrives fairly well in the limestone sections of the East, where its culture is increasing rapidly. This increase has been notable also in the slightly subhumid section of eastern Kansas and Nebraska, where the acreage has increased manyfold in the past 30 years. Alfalfa replaces wild hay in this area as the major hay crop. Seven-eighths of the alfalfa acreage is west of the Missouri River, but the acreage has increased greatly in recent years in Wisconsin and Michigan.



FIGURE 99.—This map shows the acreage of red and alsike clover grown alone. (For timothy and clover mixed see fig. 102.) Most of the clover acreage is located in the Corn Belt, but only as far west as the two eastern tiers of counties in Kansas and Nebraska, with a lesser acreage in the hay and dairy region to the north and in the corn and winter-wheat region to the south, particularly in the Nashville Basin of Tennessee, along the lower Ohio River, and up the Mississippi as far as St. Louis. Much of this clover is grown for seed as well as for hay. There is a small but dense district in western Oregon.

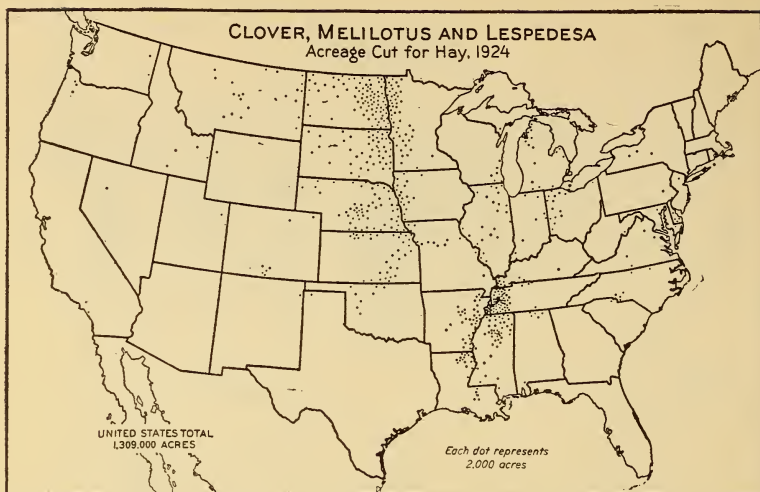


FIGURE 100.—Sweetclover (melilotus) has been a roadside weed in the Corn Belt for many years, but only recently was its value for hay and pasture recognized. It is more resistant to cold and drought than red or alsike clover, and takes their places in the northern and central plains. It is also increasing rapidly in Illinois, Indiana, and Ohio. Crimson clover is grown principally in Delaware, and eastern Maryland and Virginia, and the acreage appears to be decreasing. Japan clover or Lespedeza is grown in the South and is used more for pasture than for hay. Its use for hay is almost confined, apparently, to western Tennessee, northern Mississippi, and eastern Arkansas and Louisiana

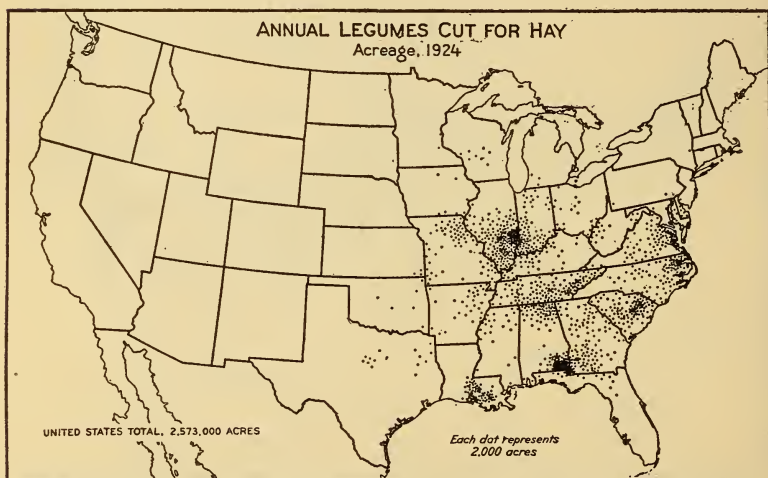


FIGURE 101.—Legumes cut annually for hay include soybeans, cowpeas, and peanuts. Soybeans are rapidly increasing in importance. The dense acreage in southern Illinois and Indiana has developed mostly since 1919. The dots in Missouri, Wisconsin, Ohio, and a part of those in northeastern North Carolina represent soybeans. In the Southern States the dots represent cowpeas largely, with a considerable acreage of peanuts cut for hay in southeastern Alabama and southwestern Georgia, and in northeastern North Carolina. Between 1919 and 1924 the acreage of annual legumes cut for hay increased 39 per cent. Most of this increase was of soybeans in southern Illinois and Indiana and in northern Missouri



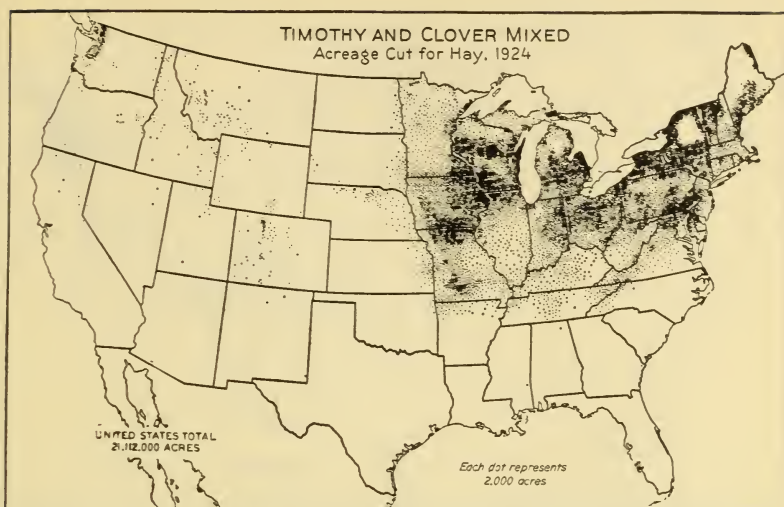


FIGURE 102.—The acreage of timothy and clover mixed extends a little farther south and is more important in the western Corn Belt and in the north Pacific hay and pasture region than that of timothy alone. Clover is not so well adapted as timothy to heavy or sour soils, consequently, timothy and clover mixed is more important on the better soils—in central New York, south-eastern Pennsylvania, western Ohio, southern Michigan, northwestern Illinois, Wisconsin, and Iowa. In these sections timothy and clover commonly constitute the third year and sometimes the fourth year also, in a rotation, following corn and wheat or oats. About two-thirds of the acreage of timothy and clover mixed is in the hay and dairy region. Compare with map of cotton acreage (fig. 37) and of red and alsike clover (fig. 99)

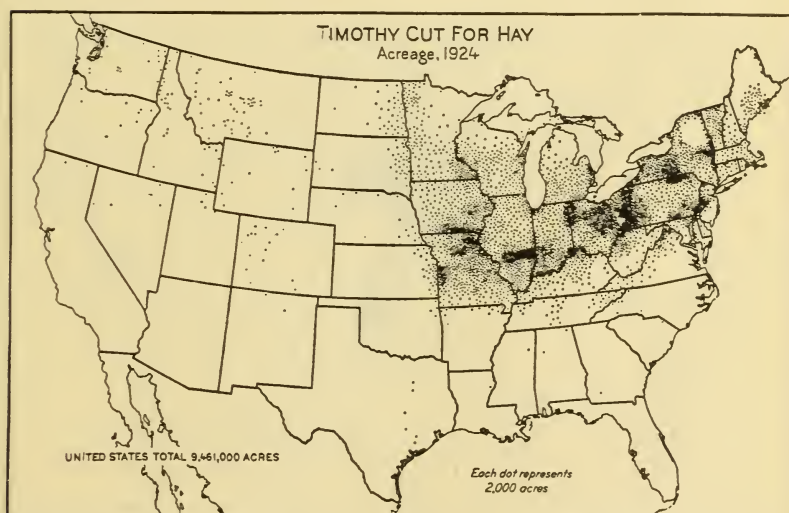


FIGURE 103.—Timothy is practically confined to the northeastern quarter of the United States, except for a scattered acreage in the moister districts of the Rocky Mountain region. The western margin of timothy acreage in the Dakotas, Nebraska, and Kansas marks the beginning of the "Black-earth" belt, where lime has accumulated in the subsoil, of dense alfalfa acreage, and of dry-farming practices. (Figs. 12, 98, and 252.) The southern boundary of timothy follows approximately the line of 200 days in the frost-free season, or 77° F. mean summer temperature. The districts of densest production in northern Missouri, southern Illinois, eastern Ohio, and western Pennsylvania have, in general, rather heavy and slightly sour soils. The acreage of timothy declined 14 per cent between 1919 and 1924

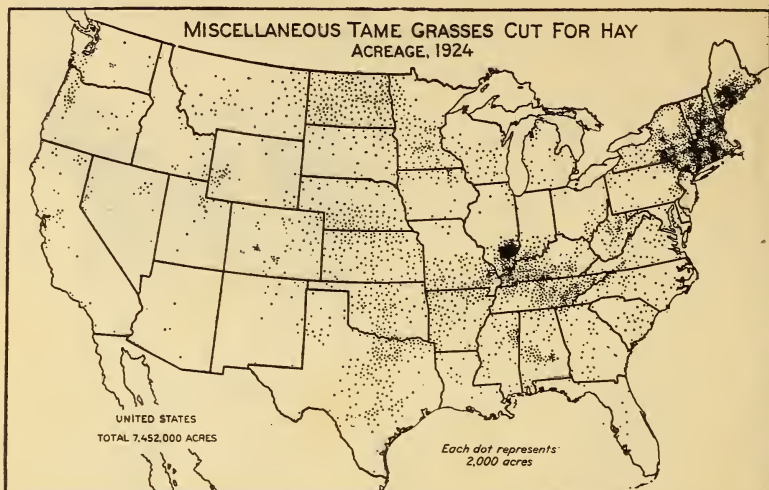


FIGURE 104.—This map shows the geographic distribution of the census item entitled "Other Tame or Cultivated Grasses Cut for Hay." Included are Bermuda, Johnson, crab, orchard, and Sudan grasses, redtop, millet, etc. In New England and New York these grasses consist mostly of the bent grasses, redtop, quackgrass, orchard grass, and Canada bluegrass. The dense center in southern Illinois is largely redtop. In the black prairie of Alabama and Mississippi, and in general throughout the South, the dots represent Bermuda and Johnson grass principally. In eastern Tennessee orchard grass and tall ryegrass probably constitute most of the acreage shown. The scattered acreage in the States from North Dakota to Texas is almost wholly bromegrass, millet, Sudan grass, or amber cane. The acreage of miscellaneous tame grasses increased over 23 per cent between 1919 and 1924.

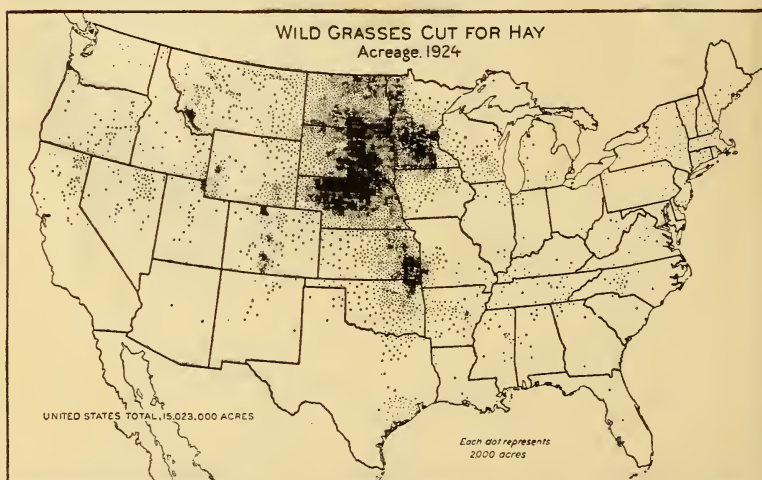


FIGURE 105.—The acreage of wild or prairie hay is found mostly in the spring-wheat region and along the western margin of the hay and dairy region, the Corn Belt, and the corn and winter-wheat belt; in brief, in the northern part of the subhumid belt. East of this belt the moister climate permits the cultivation of timothy and clover, which are more productive; and west of this belt the climate is so dry that the grass normally does not grow high enough to cut, except in the high mountain valleys and plateaus, and along the eastern margin of the grazing and irrigated-crops region. The acreage of wild hay decreased 12 per cent between 1919 and 1924. The acreage shown in Wisconsin is mostly marsh hay

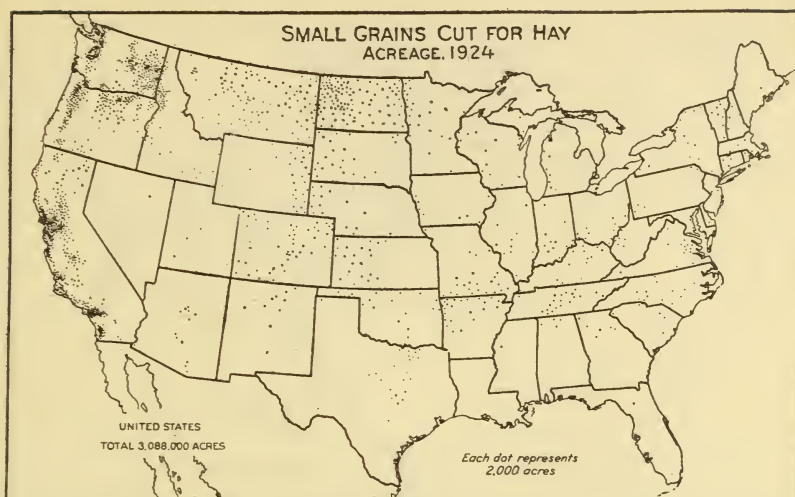


FIGURE 106.—The small grains—barley, oats, wheat, and occasionally rye—are cut green for hay, mostly in the Pacific Coast States, where a hay crop is needed that will grow quickly during the cool, moist winters, and that need not survive the long summer drought. In California, barley and wheat mostly are used; in Washington and Oregon wheat and oats are more commonly cut for hay. The large acreage shown in North Dakota and Montana is mostly wheat; it is smaller in moist seasons than in dry seasons when part of the crop in much of this area is scarcely worth threshing. The acreage of grain hay was only about half as great in 1924 as in 1919, which was a very dry season in the northern Plains

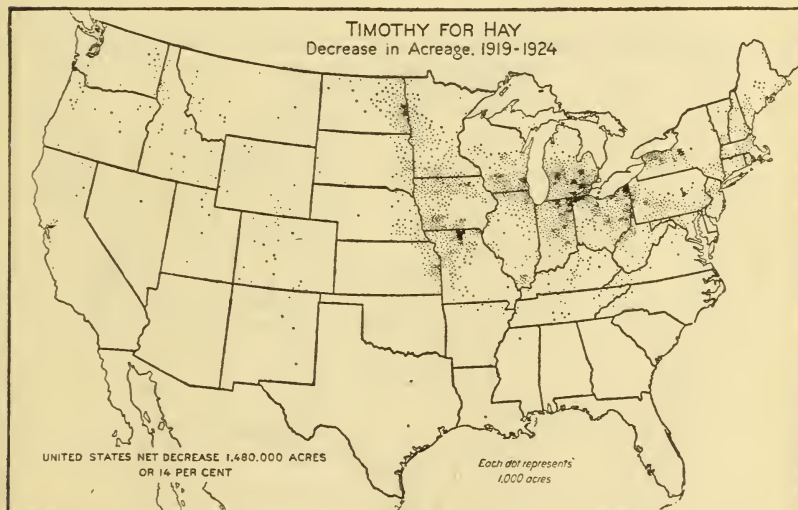


FIGURE 107.—Decrease in timothy acreage between 1919 and 1924 was notable and widespread. The greatest decrease occurred in southern Michigan and in northern Indiana and Ohio, but the decrease was only a little less notable in northern Illinois and much of Wisconsin, in Missouri, Iowa, Minnesota, the Dakotas, and in northwestern New York. Doubtless this almost universal decrease is owing largely to the decline in number of horses, for which timothy hay is usually preferred; the increase in the more nutritious clover and alfalfa is owing largely to the greater quantity of hay required by dairy cattle. This shift in hay crops tends to promote improvement in soil fertility



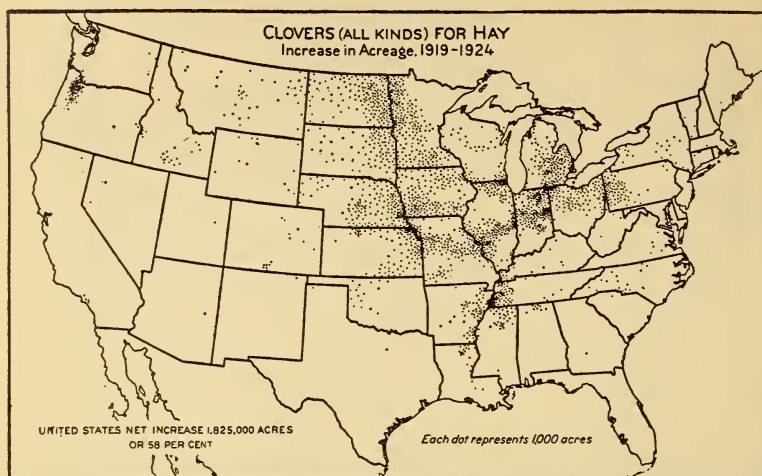


FIGURE 108.—The acreage of the clovers cut for hay increased nearly 60 per cent between 1919 and 1924. (Red, alsike, sweet, crimson, and Japan clovers are included in this map and in fig. 109.) Part of this increase was owing to the spread of sweetclover, especially in the Dakotas, Nebraska, Kansas, Minnesota, Iowa, Illinois, Indiana, and Ohio; but part was owing to the wider use of alsike or red clover in western Pennsylvania and northern Ohio, and doubtless in parts of Indiana, eastern Michigan, in much of Illinois, central Missouri, and Iowa. A notable increase occurred in the Willamette Valley of Oregon. This increased use of the clovers indicates better farming, both in conserving soil fertility and in profitable feeding of farm animals

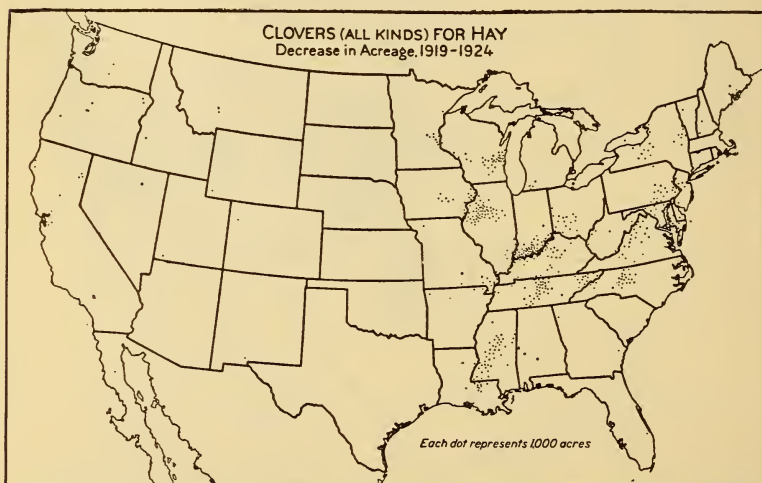


FIGURE 109.—The decrease in acreage of the clovers cut for hay is local, small, and scattered. The principal districts are located in east-central Wisconsin, north-central Illinois, extreme southern Indiana, central Tennessee, central Mississippi, and in many counties of the piedmont from Pennsylvania to North Carolina. Fortunately, the districts in which clover acreage decreased are few, and it is hoped that the next census will show that the decrease was transitory

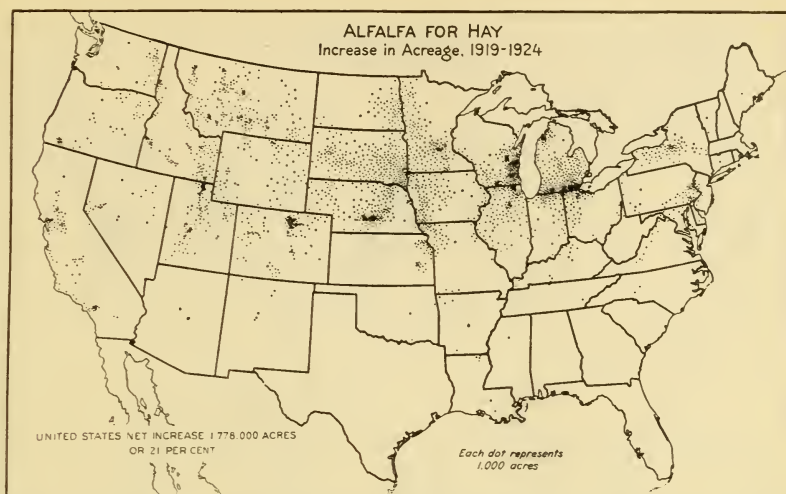


FIGURE 110.—An increase in alfalfa acreage took place between 1919 and 1924 in practically all of the northern half of the United States where the soils are not acid. The increase was notable in southern Michigan and eastern Wisconsin and was general in northern Illinois, the western portions of Iowa and Minnesota, in most of Nebraska and South Dakota, and throughout the far Western States, except in a very few irrigated districts. Especially noteworthy were the increases in northern Colorado, Utah, and Montana. Alfalfa has now reached the Canadian border, from northern New York to the Cascade Mountains, but it is not grown along the north Pacific nor the north Atlantic coasts, where the soils generally are sour, and but little is grown in the Southern States.

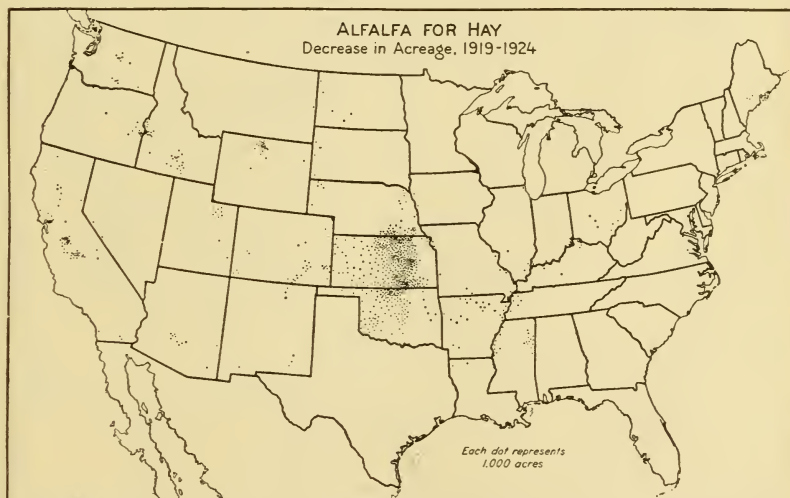


FIGURE 111.—The outstanding decrease in alfalfa acreage between 1919 and 1924 was in central Kansas and western Oklahoma. This was owing largely to a series of unfavorable seasons. A decrease is indicated for a number of counties in the far Western States also, principally in several localities in the San Joaquin Valley in California, in the Payette and Twin Falls districts of Idaho, in Big Horn County, Wyo., and in the Arkansas Valley of Colorado. More significant, probably, are the decreases in Mississippi, in Arkansas, and in a number of counties along the Ohio River. In addition to soils that tend toward acidity, the rainfall is heavy in these eastern districts and often interferes with harvesting the crop.

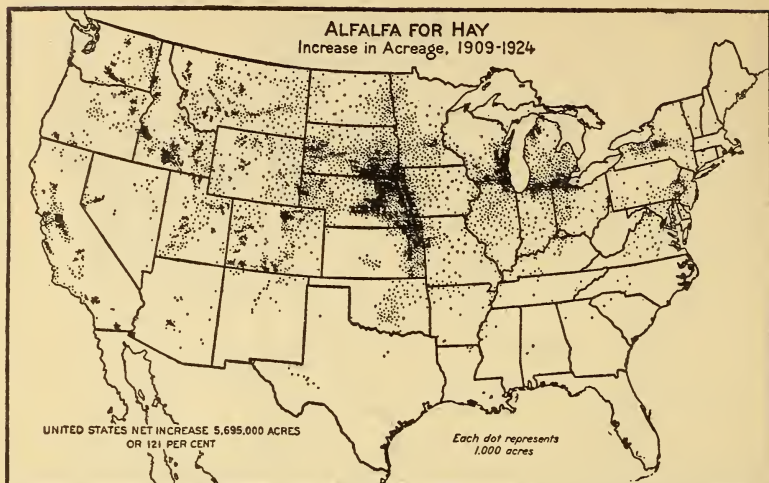


FIGURE 112.—When alfalfa hay acreage in 1924 is compared with the acreage in 1909, the advance of this fine hay crop is evident. The outstanding area is the Missouri Valley from Kansas City to Pierre, S. Dak., but large increases are shown also for eastern and southern Wisconsin, southern Michigan, and central New York. Only the northern tier of counties in Illinois, northern Indiana, and northwestern Ohio appears to have been greatly affected. The increased acreage in western South Dakota and Western Nebraska—semiarid districts in which most of the alfalfa is dry-farmed—is notable. Practically every irrigated area in the West shows an increase, and this increase has been large in Idaho, Montana, Colorado, and California

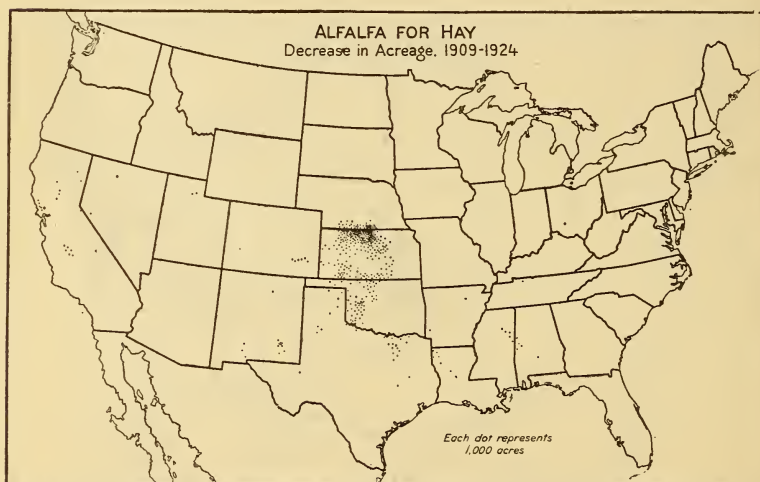


FIGURE 113.—The decrease in alfalfa acreage between 1909 and 1924 was confined almost entirely to central Kansas and adjacent counties in Nebraska and western Oklahoma, but the decrease in the black prairies of Alabama and Mississippi and in the Red River Valley of Louisiana is significant. These decreases are undoubtedly owing to climatic influences. It is to be hoped that in Kansas the decrease is transitory, but in the Southern States it may be permanent, unless a successful hay-drying machine is devised. Slight decreases may also be noted in several counties in California, in New Mexico, and in Southern Colorado



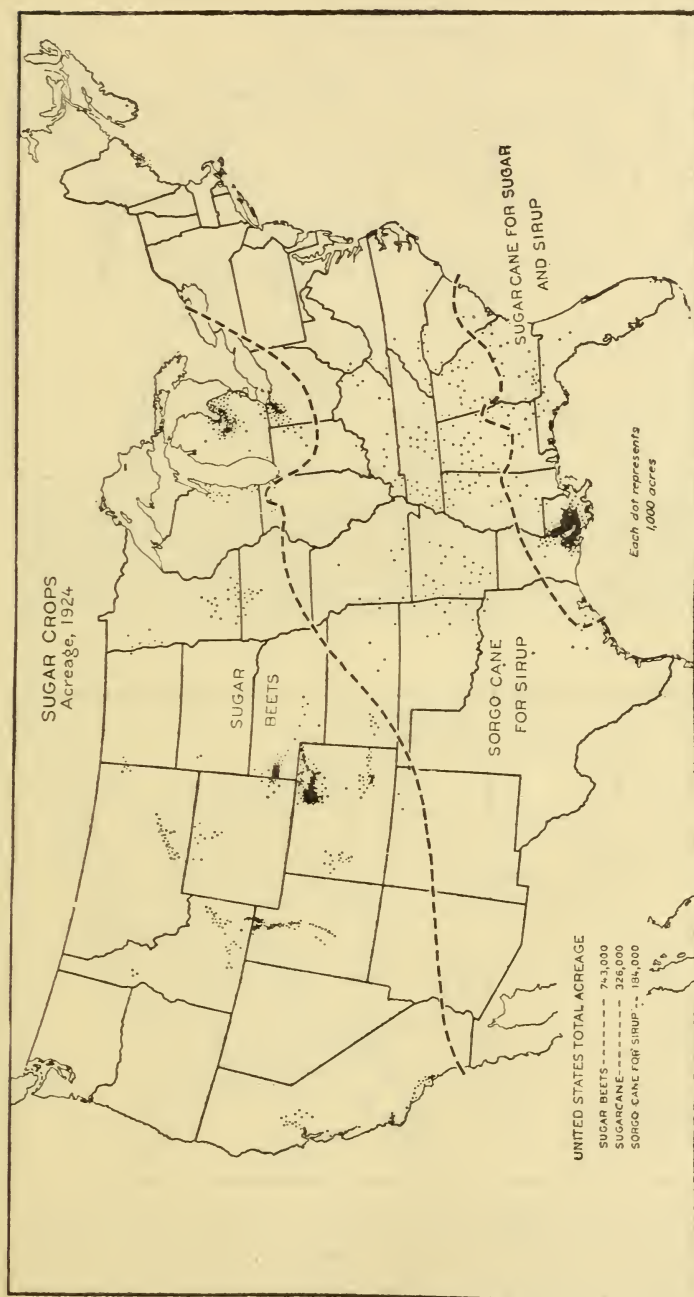


FIGURE 114.—The two more important commercial sugar crops are cane and beet. Sorgho cane can be used only to produce sirup, and the acreage has decreased greatly since the World War. The sirup is mostly made from the sorgho on the farm and does not enter into commerce. Sugar beets do not, in general, show a sufficiently high sugar content to be manufactured profitably where the summer temperature is over 72° F., and the beets must also then compete with corn for the farmer's labor. Sugarcane is not grown commercially for sugar outside of the almost frost-free lower Mississippi Delta of Louisiana and two small districts in Texas and Florida. The broad belt between the sugar-beet and sugarcane areas is occupied by a thin and scattered acreage of sorgho cane.

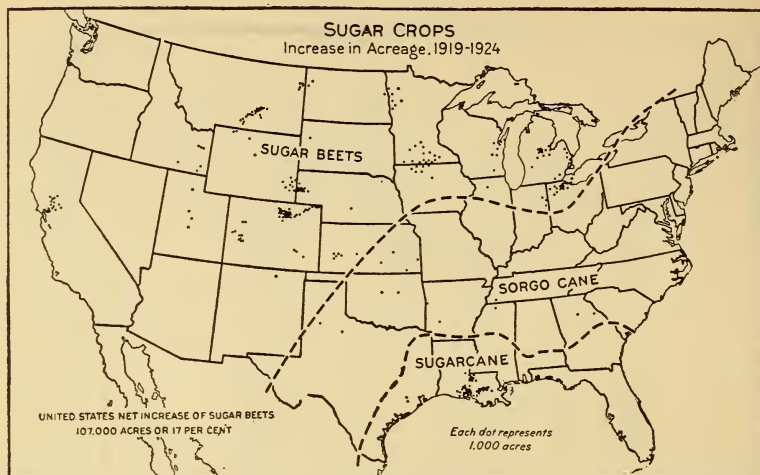


FIGURE 115.—Despite the depression in the sugar industry the acreage of sugar beets increased 17 per cent between 1919 and 1924. This increase occurred mostly in the North Platte Valley in Colorado and the South Platte Valley in western Nebraska and eastern Wyoming, in the Yellowstone Valley of Montana, in Minnesota, in northwestern Ohio, and in the Sacramento Valley of California. Only a few counties reported an increase of sorgo cane, grown for sirup, located mostly in Kansas, Oklahoma, and Texas, and some of this increase may be of sorgo used for feed rather than for sirup. Sugarcane acreage increased in the Louisiana sugar district, but some of the cane in these parishes is now used to make sirup rather than sugar.

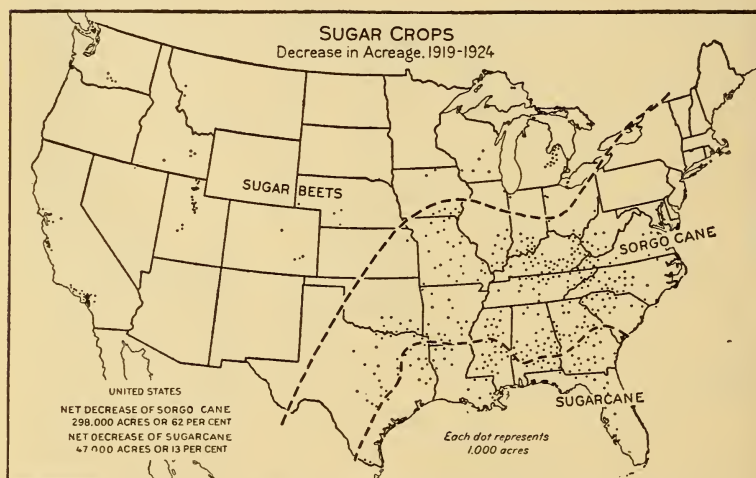


FIGURE 116.—The decrease in acreage of sugar beets between 1919 and 1924 occurred mostly in southern California, and the Salinas Valley in that State, in Utah, and in eastern Michigan. Lesser decreases are indicated in southwestern Wisconsin, in several counties in Nebraska, Colorado, and Idaho, and in the Yakima Valley of Washington, where, apparently, the factory did not operate in 1924. The decrease in sorgo cane for sirup was almost universal, only about one-third as much being grown in 1924 as in 1919. Likewise the decrease in sugarcane grown for sirup was almost universal, no appreciable increase being indicated except in the sugar-producing districts of southern Louisiana and Texas. The net decrease in sugarcane acreage, however, was only 13 per cent.

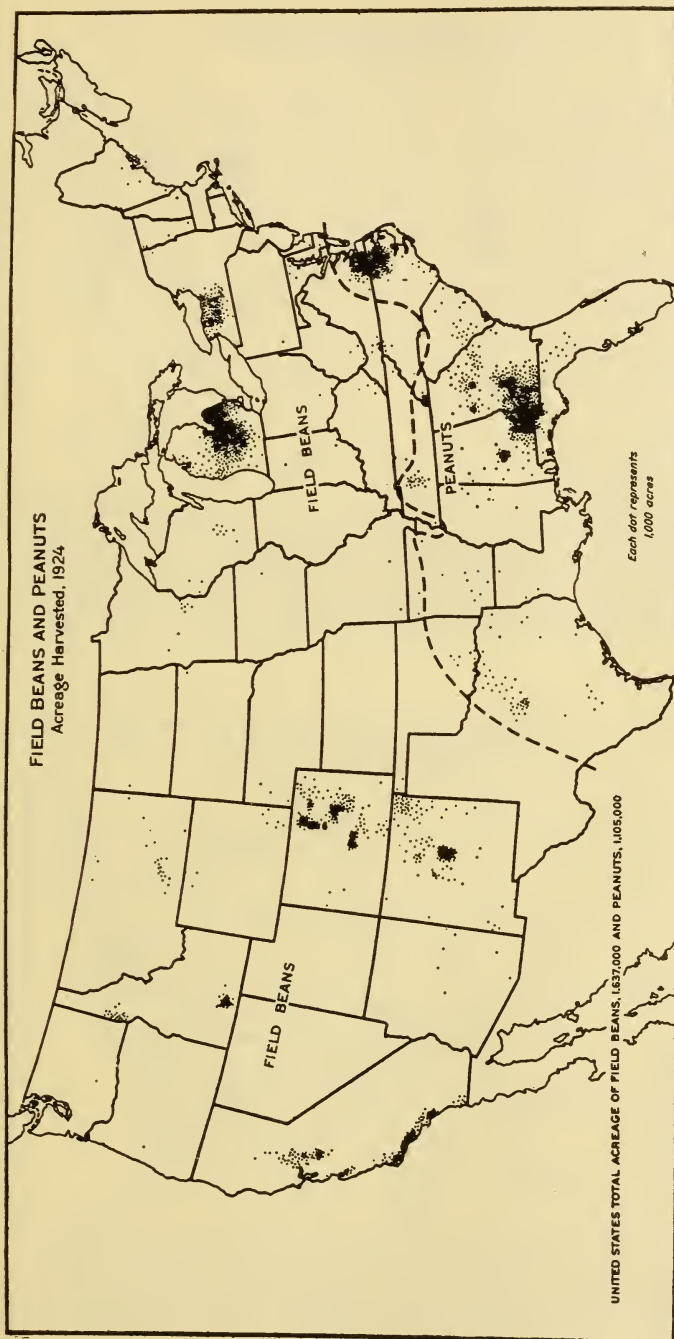


FIGURE 117.—Field beans are produced principally in five districts—in western New York and central Michigan, where the leading varieties are white pea, white medium, and red kidney; on the high plains of New Mexico and eastern Colorado, where the native Mexican or Pinto bean mostly is grown; in California, where practically the entire commercial crop of Limas and a large part of the crop of white beans is raised; and in Idaho, where the white, the Mexican, and various other varieties are grown and shipped to all parts of the United States to use as seed as well as food. The acreage of peanuts shown on the map does not include the crop hogged off by stock, but does include navy, Pinto Lima, and other ripe field beans. Peanuts for human consumption are grown mostly in the North Carolina-Virginia district; those grown in Georgia and Alabama are largely fed to hogs or made into peanut butter.



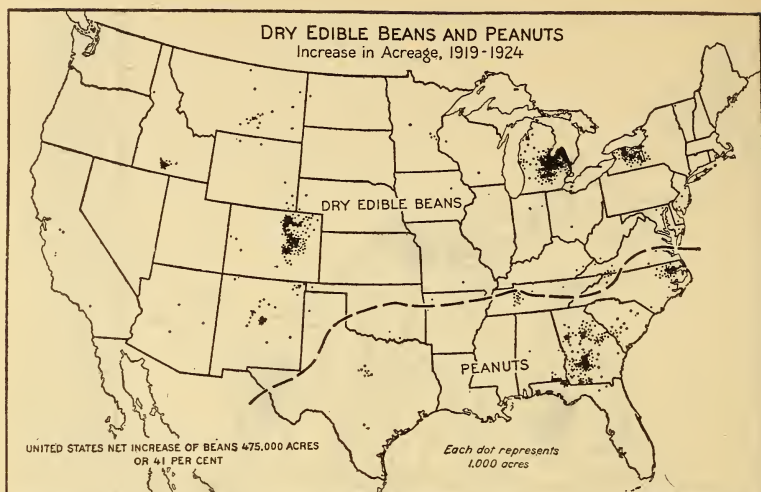


FIGURE 118.—The acreage of beans increased greatly in western New York, southern Michigan, eastern Colorado and New Mexico, and in the Twin Falls district of Idaho, between 1919 and 1924; that is, in four of the five bean districts. The production of beans is also developing in eastern Montana. For the United States as a whole the increase averaged 41 per cent. The peanut acreage increased in Georgia and North Carolina, according to the census returns, and in the western Tennessee district. The production of peanuts in the piedmont of Georgia and in central South Carolina was largely a development of this 5-year period

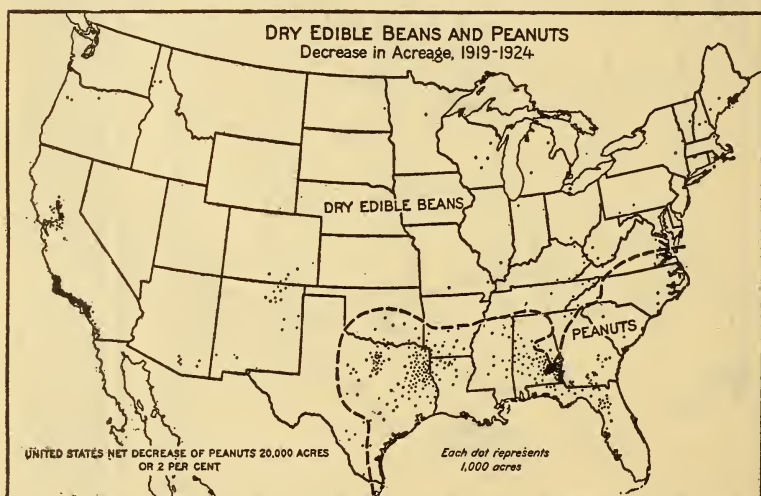


FIGURE 119.—The acreage of beans decreased notably in California between 1919 and 1924, owing partly to the fact that 1924 was a very dry year. A slight decrease is indicated in certain counties of Arizona, New Mexico, and southern Colorado. Peanut acreage decreased notably in Alabama, Mississippi, Louisiana, and Texas, also in Florida and in several counties in southern Georgia. These decreases slightly overbalanced the increases in Georgia and the Carolinas, the net result for the United States being a decrease of 2 per cent

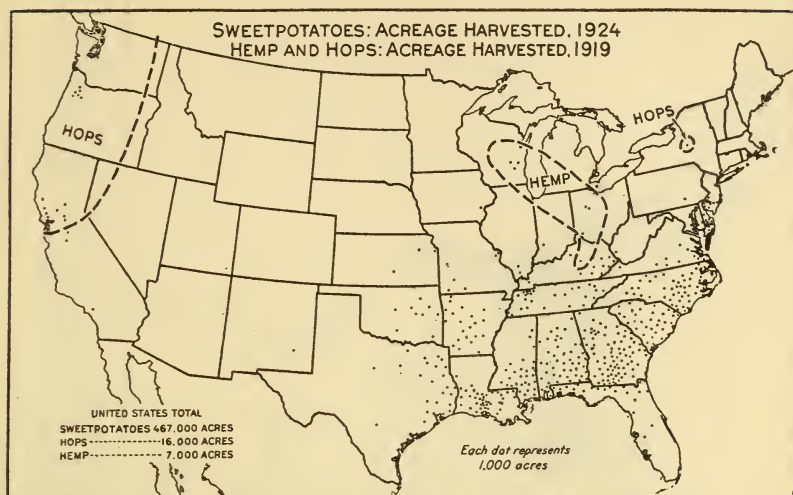


FIGURE 120.—Sweetpotatoes are a southern crop, but are grown in the sandy soils of the coastal plain as far north as southern New Jersey. New Jersey sweetpotatoes are esteemed for their quality. In the Mississippi Valley the crop is grown as far north as St. Louis and even Muscatine County, Iowa. In the eastern and central Cotton Belt sweetpotatoes largely replace potatoes as a staple food of the people. Hops are grown now principally in the Willamette Valley of Oregon and the Sacramento Valley of California, but there are still a few hundred acres of hops in central New York. Hemp is grown in southeastern Wisconsin and in Hardin and Hamilton Counties, Ohio, partly to destroy weeds. Only a few hundred acres are grown in Kentucky

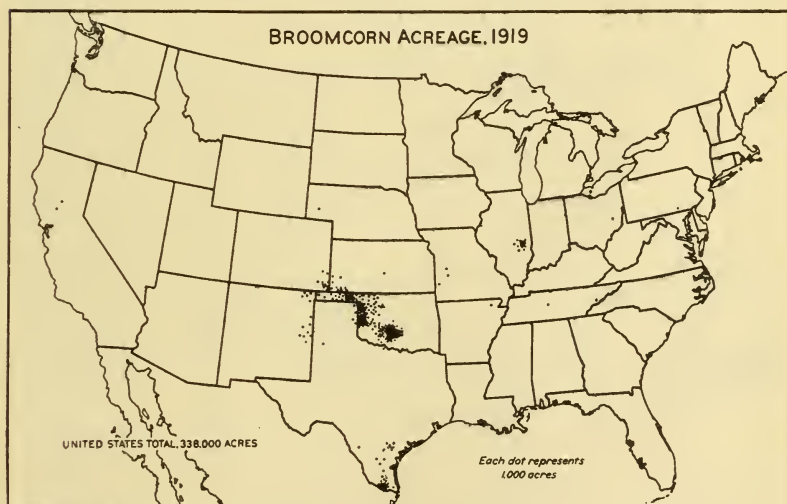


FIGURE 121.—Broomcorn is a sorghum, and like the other sorghums (fig. 81) is drought resistant. In 1919 most of the broomcorn was grown in Oklahoma. In 1929 only 40 per cent of the acreage was in Oklahoma, the producing district having so developed in Kansas, Colorado, and New Mexico that these States had nearly half the Nation's acreage. The Illinois acreage has declined in recent years but is larger than in 1919. Production in southern Texas has now almost ceased. The census of 1925 did not include broomcorn; consequently 1919 is the last year for which data are available by counties

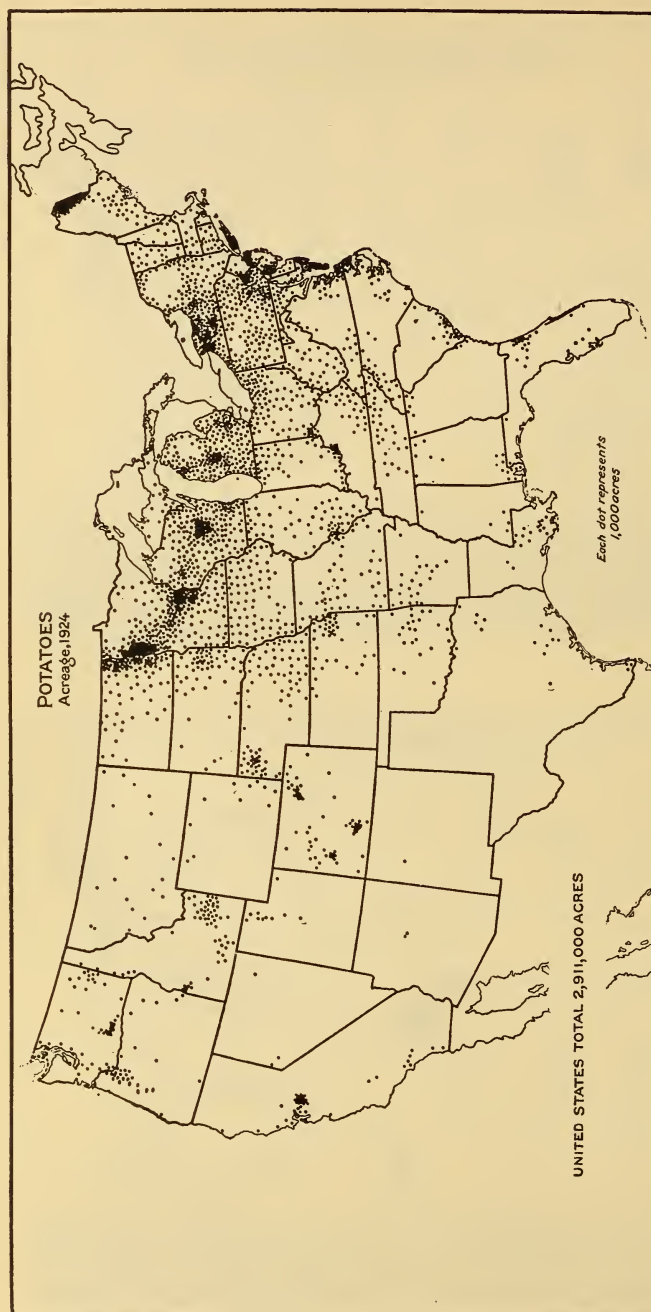


FIGURE 122.—The districts of heaviest potato production lie in latitudes north of the Corn Belt. This is due partly to the fact that the quality and yield of potatoes are better in cool climates, and partly to the fact that corn, which requires labor at the same time, is very productive and gives a greater return. Many of the large centers of potato production are in districts of sandy or loamy soils. Aroostook County, Me., Long Island, New Jersey, eastern Virginia, western Michigan, central Wisconsin, and Anoka County, Minn. Many of the minor centers of production are located near large cities, since potatoes are a bulky crop expensive to transport, and can be sold at a profit by local gardeners and farmers in competition with the crop from the large production centers.



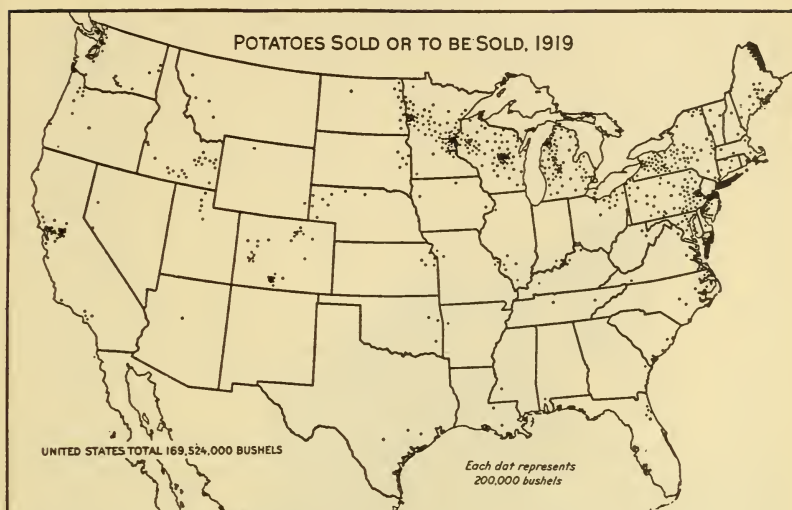


FIGURE 123.—The commercial crop of potatoes is more concentrated than the total crop, that is, the evenly spread dots on the acreage map (fig. 122) represent largely production for local use. The districts of densest commercial production are Aroostook County, Me., Long Island, New Jersey, and the Eastern Shore of Virginia and Maryland, central Wisconsin, Anoka and Clay Counties, Minn., several districts in Colorado, and the delta district east of San Francisco Bay. Less dense districts cover much of Pennsylvania and western New York, western Michigan, northern Wisconsin and Minnesota, and the Snake River plains of Idaho. Little commercial production lies south of a line from Norfolk, Va., to Fargo, N. Dak. Somewhat over half the 1919 potato crop was sold; the remainder was used on the farms where grown

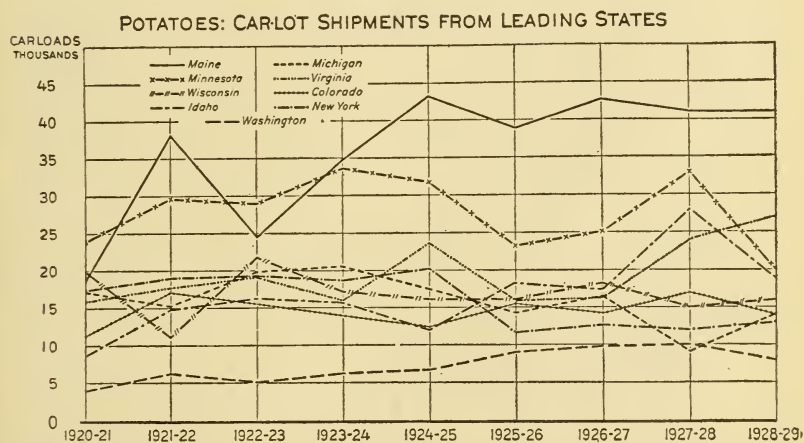


FIGURE 124.—Fluctuations in acreage and production of potatoes from year to year are so great that a map of increase or decrease between particular years might be misleading. So this graph is substituted to show the trends in commercial production in the leading States. Shipments from Maine rose rapidly from 1922 to 1924, and have been well maintained since; shipments from Minnesota declined from 1923 to 1925 and after a notable rise in 1928, had fallen by 1929 to the lowest point in the decade; and shipments from Virginia, after remaining more or less stationary until 1926, rose rapidly in 1927 and 1928. Idaho ranked next in shipments in 1928-29, followed by Wisconsin, Colorado, Michigan, New York, and Washington

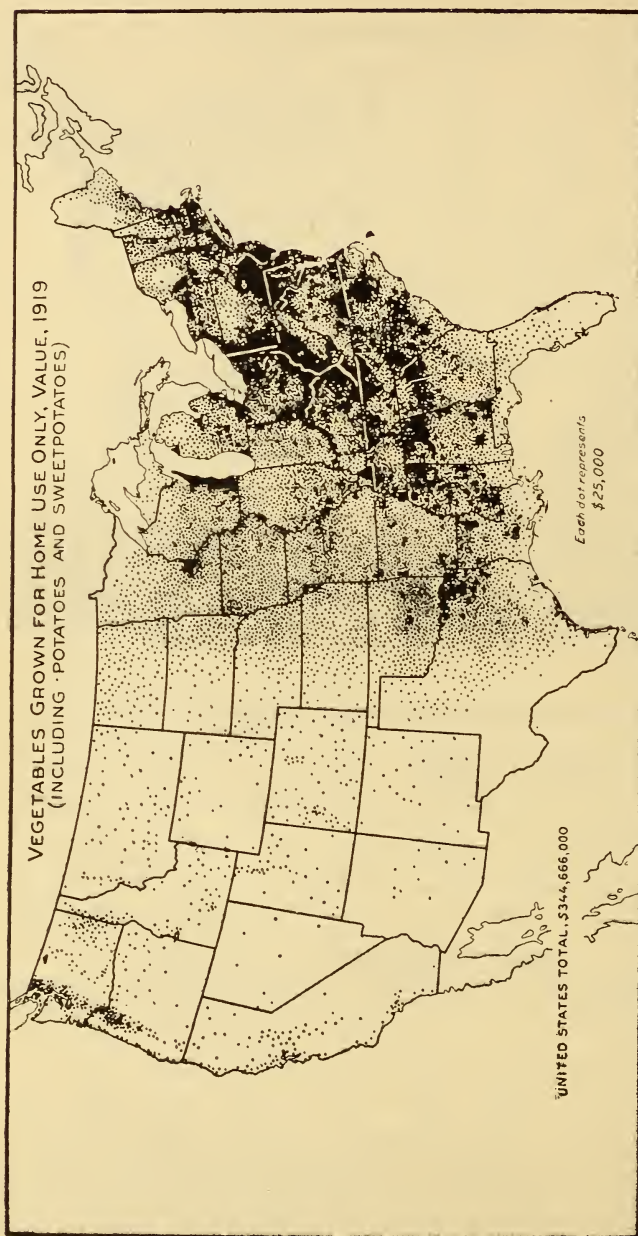


FIGURE 125.—The census of 1920 was the first to separate vegetables grown for home use from those grown for sale, and the census of 1925 obtained the returns only of the commercial crop of seven vegetables. The areas of greatest acreages of vegetables for home use are southeastern Pennsylvania, the upper Ohio Valley, the mountainous districts of eastern Kentucky and Tennessee and of northern Alabama, the upper piedmont of the Carolinas and Georgia, and much of Mississippi, the Lake Michigan shore counties of Wisconsin, southeastern Michigan, and central New York—districts of small farms owned by frugal people. (Figs. 249 and 250.) The average size of the farm garden, however, is greatest, apparently, in Virginia and Massachusetts (about one-half acre), and smallest in the prairie and Plains States (about one-fifth acre)

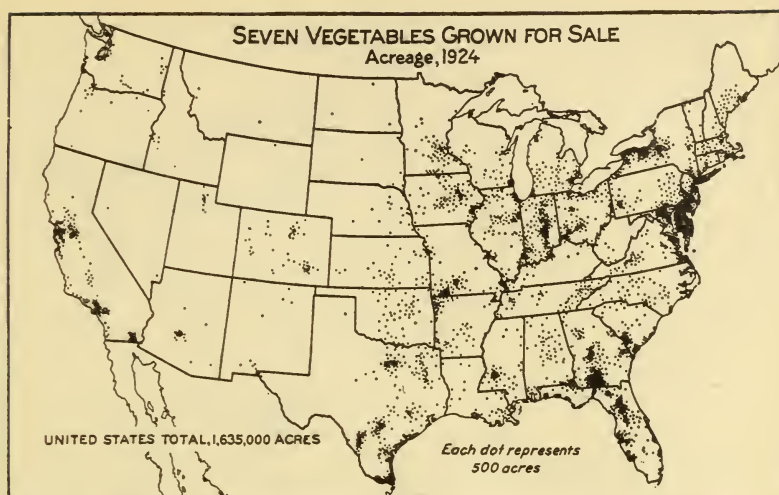


FIGURE 126.—The most important area of commercial vegetable production extends from New York City to Norfolk, Va. In this area about one-fifth of the Nation's commercial crop is produced. This commercial crop includes cabbage, cantaloupes and muskmelons, lettuce, onions (dry), sweet corn, tomatoes, and watermelons. A second important area extends from Utica, N. Y., west to Buffalo, Erie, and Toledo. Another belt surrounds the southern half of Lake Michigan and extends southward into Illinois and Indiana. Several important districts have developed in Minnesota, Iowa, Missouri, and Texas. Florida, southern Georgia, and South Carolina, where perhaps one-third of the winter vegetables are grown, constitute an outstanding area. California has three important districts—the Sacramento-Stockton district, the Los Angeles district, and Imperial Valley. In California the winter crop is very important. Smaller centers of production adjoin most of the large cities.

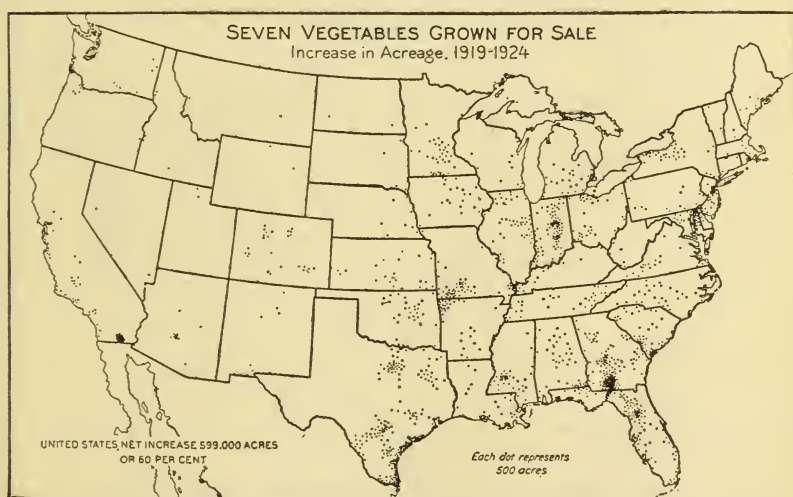


FIGURE 127.—Only seven vegetables were enumerated by the census of 1925, but these are probably representative of the commercial vegetable industry. They were: Cabbage, cantaloupes, lettuce, onions, sweet corn, tomatoes, and watermelons. The increase in acreage of these vegetables was extraordinarily large (60 per cent) and widespread. The counties reporting a decrease were so few that the map of decrease is not shown. The principal areas of increase were southern Georgia and Florida, eastern Maryland and New Jersey, central Indiana, the Ozark section, several districts in Texas, and Imperial Valley in California. As the season in California was exceedingly dry, the 1924 crop failed to show the great increase in vegetable production that has occurred in most districts in that State.



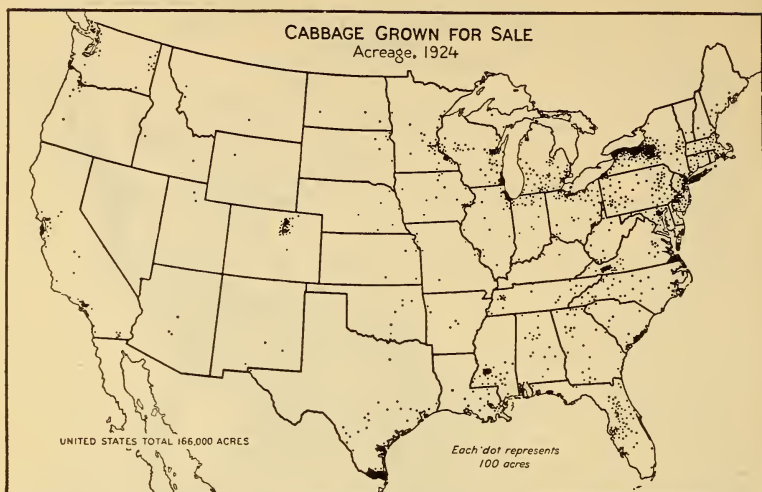


FIGURE 128.—The cabbage crop is divided into early and late. The largest late-cabbage district consists of the belt of counties in New York from Buffalo to Syracuse. In this district nearly one-quarter of the Nation's cabbage acreage is found, mostly on the muck lands and the Clyde series of soils. Other important districts are Long Island, N. Y.; Burlington and Gloucester Counties, N. J.; around Norfolk and in Wythe County, Va.; along Lake Erie and Lake Michigan from Chicago to Milwaukee; in Green Bay County, Wis.; around Denver, Colo., and Los Angeles, Calif. Early cabbages are raised mostly in Florida, in the Young's Island (S. C.) district, in Covich County, Miss., in southern Texas, and in southern California. The acreage of cabbage was 34 per cent greater in 1924 than in 1919.

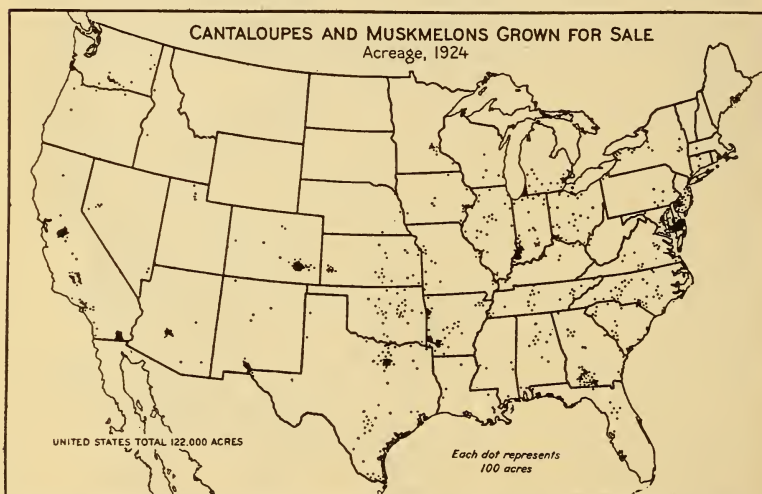


FIGURE 129.—The principal cantaloupe-producing districts are now located in the West, California having over one-quarter of the Nation's acreage. The most important western districts are in Stanislaus (Turlock district), Kern, Los Angeles, and Imperial Counties, Calif.; in the Salt River Valley (Phoenix district) of Arizona, and the Mesilla Valley of New Mexico; and the Arkansas Valley (Rocky Ford-Ordway district) of Colorado. In these districts over a third of the Nation's acreage was found in 1924. Texas ranked next to California and Colorado in acreage, the principal districts being located in Tarrant and Bexar Counties. Other important districts are Hempstead and Sevier Counties, Ark.; Gibson and Knox Counties in Indiana, Berrien in Michigan, Sussex in Delaware, and Wicomico and Dorchester in Maryland, Gloucester in New Jersey, and Mitchell County (Pelham district), Ga. The increase in the commercial acreage in the United States was nearly 60 per cent between 1919 and 1924.

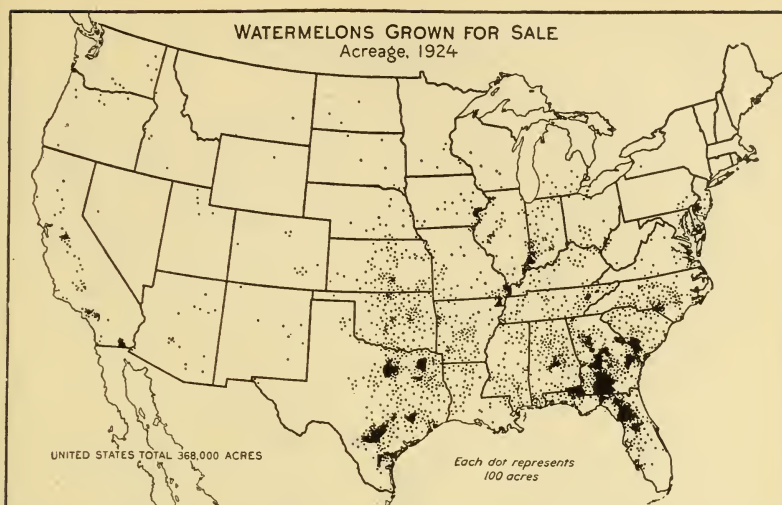


FIGURE 130.—The principal watermelon-producing districts are in the South, Georgia and Texas having over 40 per cent of the Nation's acreage. The most important districts in Georgia center around Valdosta and Thomasville, and in Texas around Sulphur Springs, Fort Worth, and San Antonio. Florida ranks next in importance, but the acreage is scattered. There is an important center in Barnwell and Allendale Counties, S. C., in Robeson County, N. C., and in southern Indiana. Mississippi and Scott Counties in southeastern Missouri are other important districts, as are Imperial, Stanislaus, and Los Angeles Counties, Calif. The commercial acreage in the United States more than doubled between 1919 and 1924



FIGURE 131.—Most of the commercial crop of lettuce is grown in California—along the coast south from San Francisco and in the Salinas Valley, along the coast of southern California, and in the Great Valley and the Imperial Valley. A large quantity is produced in the Salt River Valley of Arizona, and about the same quantity in Florida. Smaller districts adjoin Charleston, S. C. and Wilmington, N. C. Most of the production in these districts is winter lettuce for eastern and northern cities. The summer lettuce comes from high mountain valleys in Colorado, from Idaho and western Washington, from the Ontario shore counties of New York, from New Jersey, and the Boston district. The commercial acreage of lettuce increased threefold between 1919 and 1924

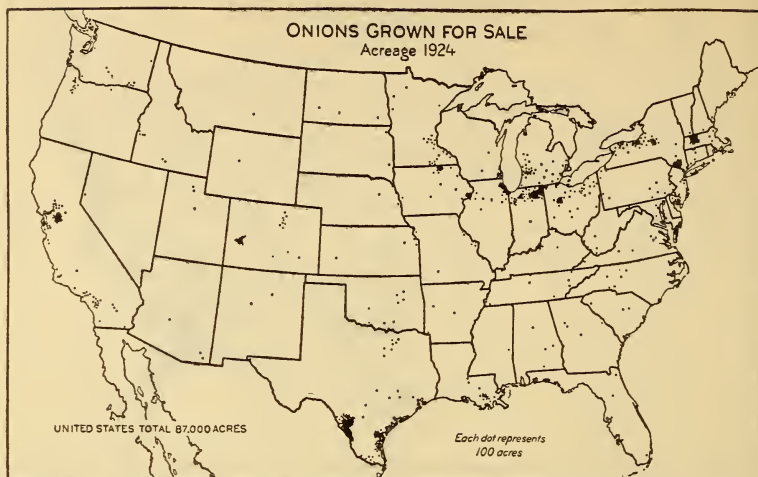


FIGURE 132.—The commercial production of onions is concentrated in a few districts, principally in the Connecticut Valley of Massachusetts and in Orange County and the Ontario lowland of New York, in northern Indiana and Hardin County, Ohio, along Lake Michigan from Chicago to Milwaukee, and in several counties of Iowa, in southern Texas, notably the winter garden district north of Laredo (where the large, mild Bermuda onion is grown), in the Uncompahgre Valley of Colorado, and in several counties of California, principally in the San Joaquin-Sacramento delta. Many of these districts, but not all, have muck soils. In addition, there are in almost every State counties that have a small acreage of onions

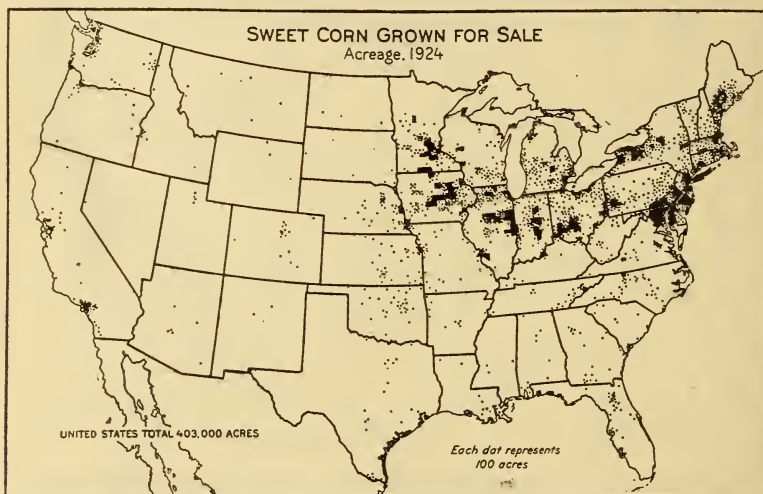


FIGURE 133.—Sweet corn is primarily an eastern, middle-latitude crop, but it is extensively grown also in New York and New England, owing chiefly to the excellent quality produced and the fact that it need not mature. Illinois and Maryland led in acreage in 1924, followed by Ohio, New York, Iowa, Pennsylvania, Indiana, New Jersey, and Minnesota in close succession. The acreage in these States is concentrated in a few counties. This is owing usually to proximity to canning factories or cities. Although almost no corn is grown for grain in Maine or California (fig. 48), there is a considerable acreage of sweet corn in these States



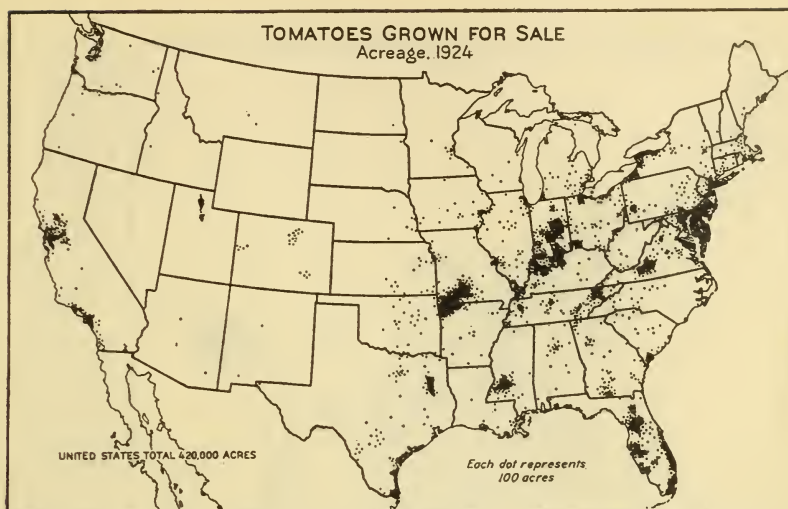


FIGURE 134.—Tomatoes are grown for sale in almost all parts of the United States, except in the spring-wheat region, where the season is short. The eastern Maryland, Delaware, and southern New Jersey districts include over one-fourth of the Nation's acreage, and the Florida, the Indiana, and the Ozark districts each include about one-tenth. Virginia and California rank next in importance, Florida and California produce the winter crop. Other important early-tomato districts are located in Copiah County, Miss., and Cherokee County, Tex. Tomatoes lead all the vegetables grown for sale in the United States (other than potatoes and sweetpotatoes), both in acreage and value. The increase in commercial acreage was over 30 per cent between 1919 and 1924



FIGURE 135.—Commercial production of strawberries has become concentrated in unusual degree in a few centers, notably in southern New Jersey, southern Delaware, and the Eastern Shore of Maryland and Virginia; in Columbus, Duplin, and Pender counties, N. C.; in Hamilton and Rhea Counties and in northwestern Tennessee; in southwestern Missouri and northwestern Arkansas; in White County, Ark., in Tangipahoa Parish, La.; in Hillsborough County, Fla.; in Berrien County, Mich.; in Hood River County, Oreg.; and in the Willamette and Puget Sound Valleys. These districts contained two-thirds of the Nation's commercial acreage of strawberries in 1924

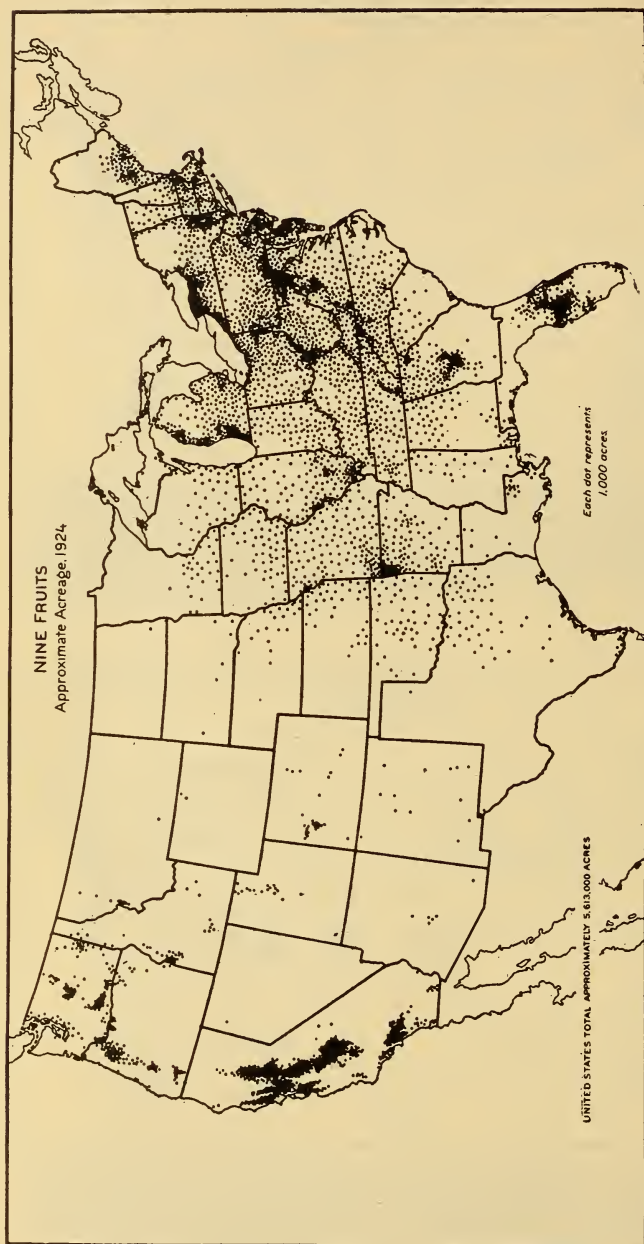


FIGURE 136.—California contributes over one-sixth of the Nation's acreage of fruits and nuts and over one-third of the value. The district in southern California grows mostly citrus fruits, walnuts, grapes, and apricots; that in central and northern California produces grapes, peaches, apricots, plums, and prunes, with some citrus fruits and pears in the foothills and apples near the cool coast. The dots in Florida represent mostly citrus fruits; those in the Cotton Belt, especially in Georgia, peaches; and those in extreme western New York and southwestern Michigan, apples, grapes, and peaches. Elsewhere in the United States, with few exceptions, the apple is the dominant fruit. Only nine fruits were reported in the 1925 census, and the acreage has been estimated from the census figures of number of trees. The nine fruits were apples, pears, peaches, plums and prunes, grapes, oranges, lemons, grapefruit, and strawberries.

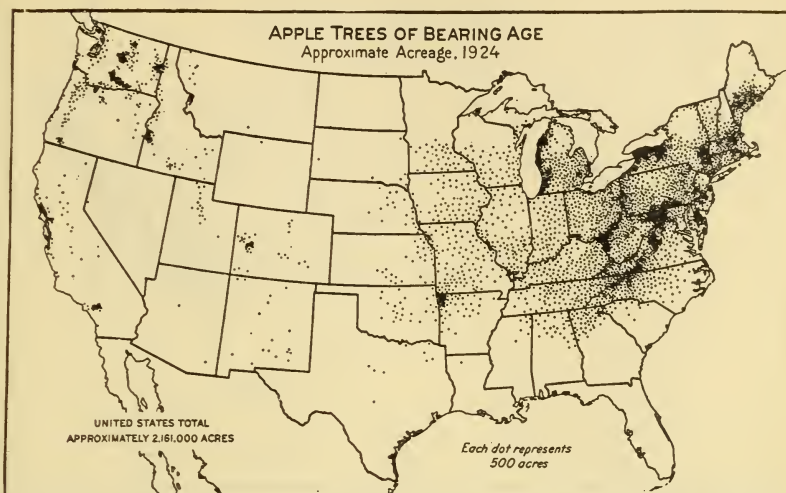


FIGURE 137.—About 14 per cent of the acreage of apple trees of bearing age was in the West in 1924, and nearly half of this western acreage was in the State of Washington. New York, Pennsylvania, Ohio, Michigan, Virginia, and West Virginia, however, exceeded Washington in acreage. Most of the apple acreage is found in the hay and dairy region from Maine to West Virginia and Michigan, where the climate is cool, but the winters are moister and less severe than in the interior because of lake or mountain protection. The southern limit of the apple area extends only a little beyond the northern limit of cotton, and the western, or moisture limit, is about the same as that of timothy. (Figs. 37 and 103)



FIGURE 138.—There has been little planting of apple orchards in the West in recent years as the higher freight rates increase the difficulties of competition with eastern-grown fruit. Only 6 per cent of the apple trees not of bearing age were in the West in 1924. Most of the acreage of young trees is located along the shore of Lake Ontario in New York, in the Hudson Valley, in New England, along the Appalachians from Pennsylvania to Georgia, in the upper Ohio Valley, along the Lake Michigan shore of Michigan, and in northwestern Arkansas. Trees not of bearing age numbered 34,000,000 in 1924 as compared with 36,000,000 in 1920, and nearly 66,000,000 in 1910



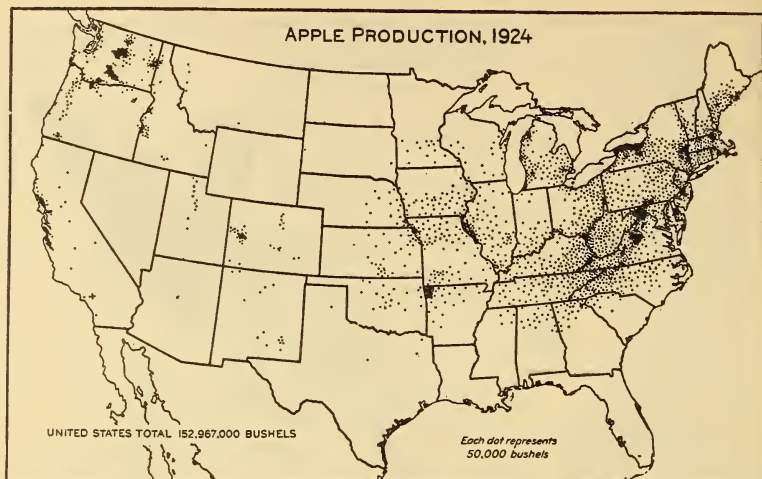


FIGURE 139.—The West produced one-fourth of the apples grown in 1924 despite the fact that it possessed only one-seventh of the acreage of bearing trees. New York led all States in production, followed by Washington and Virginia. The three famous apple districts of Washington—the Yakima Valley, the Wenatchee Valley, and Spokane County—stand out clearly on the map; also the Hood River Valley of Oregon, the Boise (Idaho) district, the Sebastopol and Watsonville districts in California, and the Grand Junction-Delta-Montrose district of Colorado. In the East the New England area, the two noted New York districts, the vast Appalachian area, the western Michigan, the western Illinois, the Ozark, and the northwestern Missouri districts are the most important

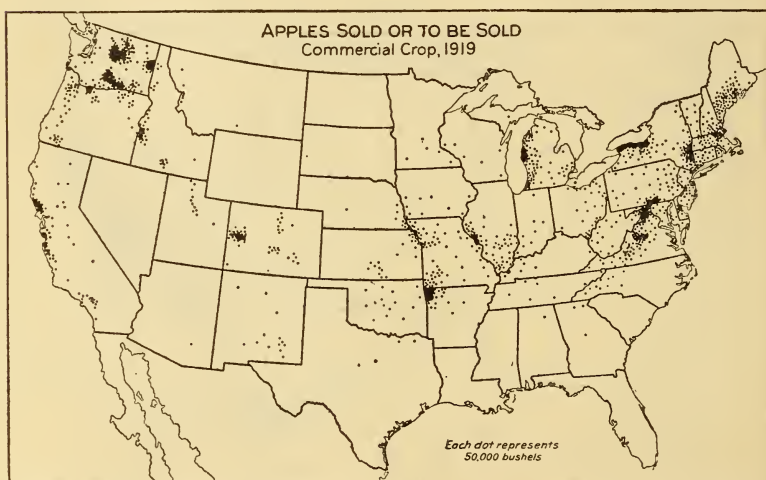


FIGURE 140.—The commercial crop of apples in 1919, that is, the quantity sold or to be sold, was nearly 100,000,000 bushels, according to the census, constituting three-fourths of the total crop. The West produced over two-fifths of this commercial crop, Washington alone reporting over one-fifth of the total quantity in the United States. Eighty per cent of the commercial crop was produced in 16 apple districts already referred to. The production of the commercial crop of apples is more concentrated than the total production, and the total production, in turn, more concentrated than the acreage. Diseases and pests diminish the production of the unsprayed home orchards several years before they kill the trees

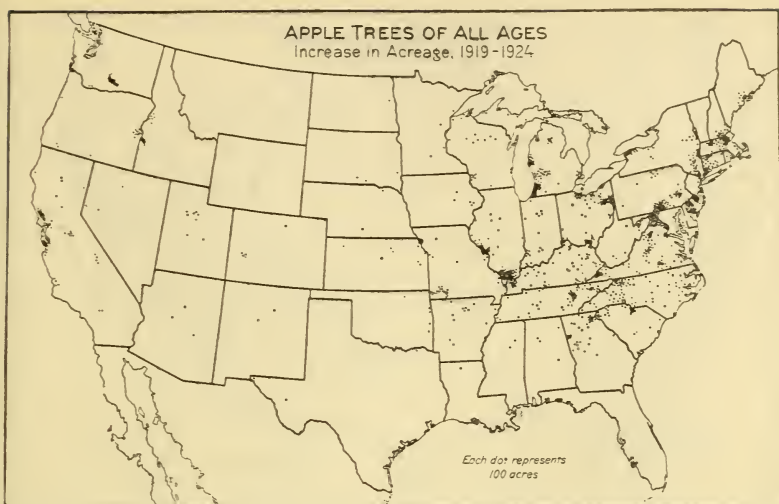


FIGURE 141.—The increase in apple acreage between 1919 and 1924 took place mostly in southern New England and southern New Jersey, in several counties in New York, in the Appalachian area, particularly the lower Shenandoah and adjoining valleys to the north in Maryland and Pennsylvania, in northeastern Ohio and western Michigan, in the Ozarks of southern Illinois, in the California districts, and in Yakima County, Wash. Most of the counties showing increase, it will be noted, are in Eastern States, but it is significant that several counties in the West, that have favorable climate and soils and well-organized marketing facilities, show an increase

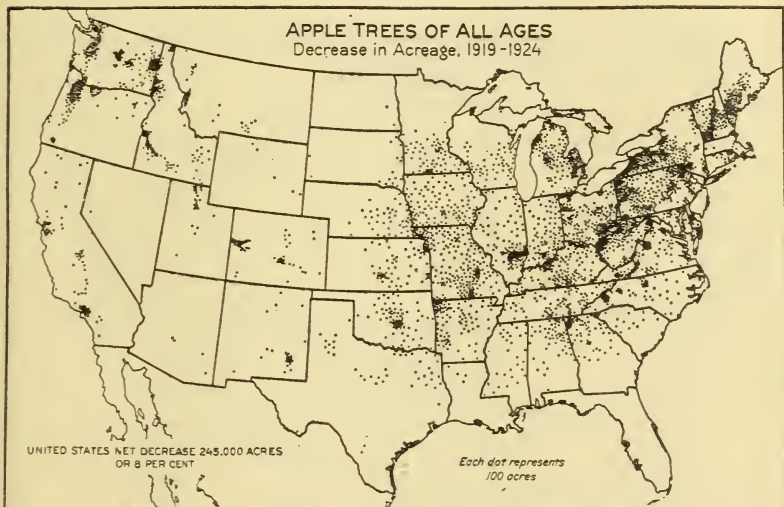


FIGURE 142.—The decrease in apple acreage between 1919 and 1924 was much more extensive than the increase. It was very heavy in northern New England, in most of western New York and Pennsylvania, in much of the Appalachian area, and in the upper Ohio Valley, in eastern Michigan and throughout most of the Corn Belt, in most of the Ozark area, and in all but a few of the valleys of the West. The San Jose scale and other diseases are gradually eradicating most of the farm orchards, which are seldom sprayed, and some commercial orchards. The industry seems to be concentrating in those districts that have favorable physical conditions and efficient marketing organizations

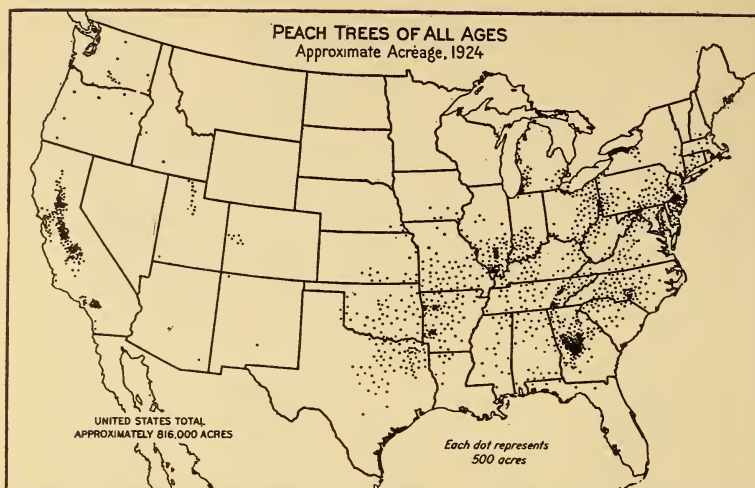


FIGURE 143.—Three major centers of peach acreage are shown—the early peach district in central Georgia, the late peach district along Lake Ontario in New York, and the canning and dried peach districts in California. An important peach district is rapidly developing in Moore and Richmond Counties, N. C. Minor centers are located in southern New Jersey, in eastern Tennessee, in western Maryland, and adjacent counties of West Virginia, along the Michigan shore of Lake Michigan, in southern Illinois, in western Arkansas, and in northeastern Texas. Cold, dry winters prevent peach production to the northwest of a line drawn from Chicago to Omaha, thence to Amarillo, Tex. The influence of the Great Lakes in tempering winter temperatures on their leeward shores and retarding growth in spring till danger of frost is past is evident.

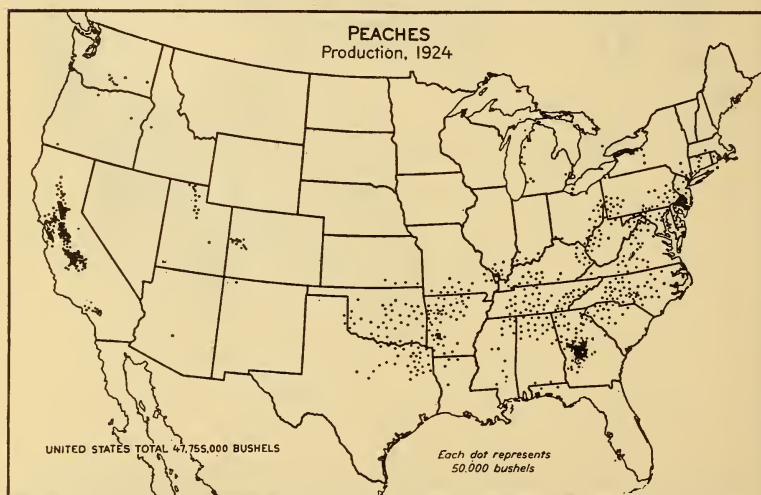


FIGURE 144.—California produced only one-fourth of the Nation's crop of peaches in 1924, owing to drought. Normally California's production is a third to a half of the national total. This State produces nearly all the canned peaches of the Nation. Georgia ranked second as usual. A third center of production is in southern New Jersey and a fourth in western New York. It is worth noting that the production of peaches in 1924 did not extend nearly so far to the north and west as the acreage. In Michigan the 1924 crop was scarcely half the normal size.



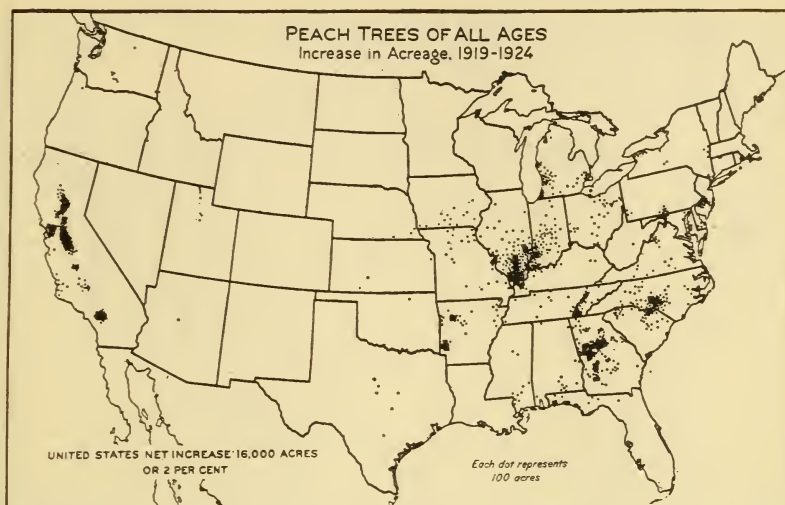


FIGURE 145.—Increase in peach acreage between 1919 and 1924 occurred in the Georgia, Carolina, Tennessee, Arkansas, and California centers of production (except Fresno and Placer Counties), and notably in southern Illinois. This Illinois district is of comparatively recent development, the production in 1924 being rather small. (Fig. 144.) Lesser increases are noted in parts of New Jersey, of western New York, of Ohio, Michigan, Indiana, and even in northern Missouri and southern Iowa; also, very slight, in the Utah oasis and in Yakima County, Wash. As with apples, there is a tendency for production to concentrate in the major centers, but these centers seem to be expanding in area

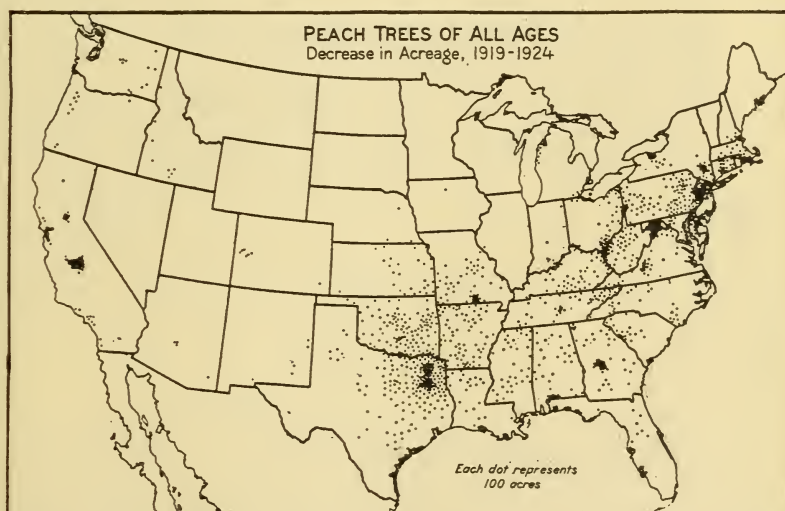


FIGURE 146.—Decrease in peach acreage was widespread in the East outside the commercial districts, and took place in some of these districts, notably in Houston County, Ga., Monroe and Ulster Counties, N. Y., in northern New Jersey and northeastern West Virginia, in Fresno and Placer Counties, Calif., and almost universally in eastern Texas and Oklahoma. The wide distribution of the dots in the South and East suggests that the disappearance of farmers' orchards, so characteristic of apples, is also occurring in the case of peaches. Unlike apples, however, there was an increase (though small) of total number of trees in the Nation



FIGURE 147.—The principal pear-producing districts are in the foothills of central and of southern California, in the Rogue River and Willamette Valleys of Oregon, in the Yakima Valley of Washington, in Berrien and adjacent counties, Michigan, along the Ontario shore of New York, and in the Hudson Valley. As with peaches, it will be noted that few pears are grown north of a line from Chicago to Omaha, Nebr., and Amarillo, Tex. Likewise the moderating influence of the Great Lakes in winter is clearly apparent. Pears are grown extensively much farther south than apples, but the number of trees in Florida is very small

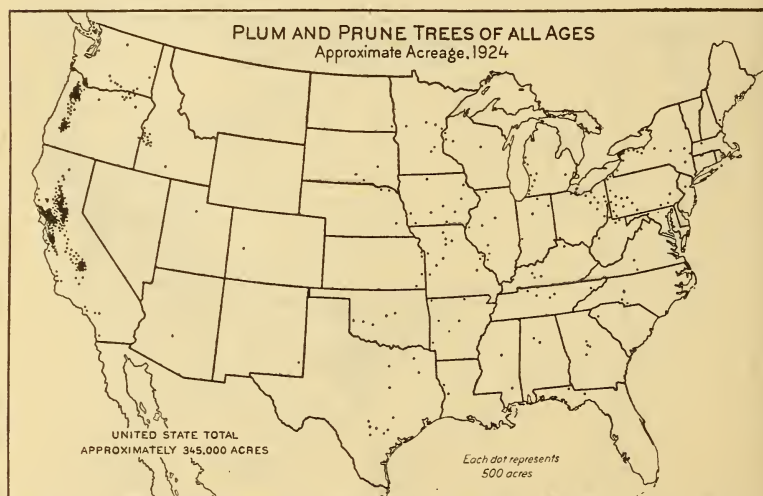


FIGURE 148.—Over half of the Nation's acreage of plum and prune trees is in California and two-fifths is in the five counties of Santa Clara, Sonoma, Placer, Napa, and Solano. One-seventh more is in Marion, Polk, and Yamhill Counties, Oreg. Smaller centers may be noted in Clarke County, Wash., in the upper Willamette and Umpqua Valleys, Oreg., and in Fresno County, Calif. Prunes constitute nearly the entire production in these States. The scattered dots in the eastern half of the United States represent plums almost exclusively. Western New York is the principal center of plum production

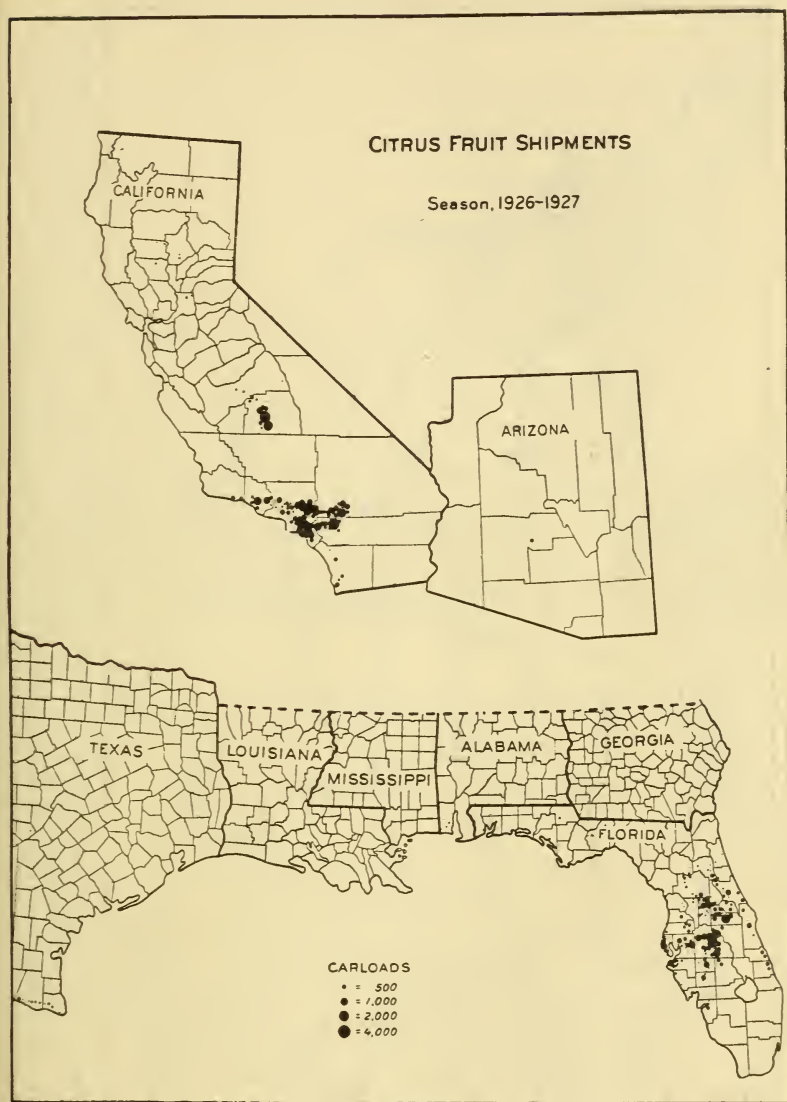


FIGURE 149.—Each shipping point in California and Florida is shown by a dot, the size of the dot varying with the number of carloads shipped. There are about 20,000,000 citrus trees in California, mostly oranges and lemons, principally on the alluvial fans and piedmont slopes that fringe the valley from Los Angeles to Redlands, and on the fan formed by the Santa Ana and Santiago Rivers in northern Orange County, also on the slopes of the Santa Paula Valley in Ventura County. Another area is located on the slopes at the foot of the Sierras in Tulare County. On these foothill slopes the cool air drains off on frosty nights and the drainage of surplus irrigation water is also better than in the bottom lands. The Rio Grande delta of Texas has 5,000,000 citrus trees, mostly grapefruit, and 80 per cent under 5 years of age. The land is nearly level and the trees are irrigated. In Florida the 18,000,000 citrus trees, practically all oranges and grapefruit, are grown mostly on the sloping lands of the lake district in the central part of the State, and are not irrigated.



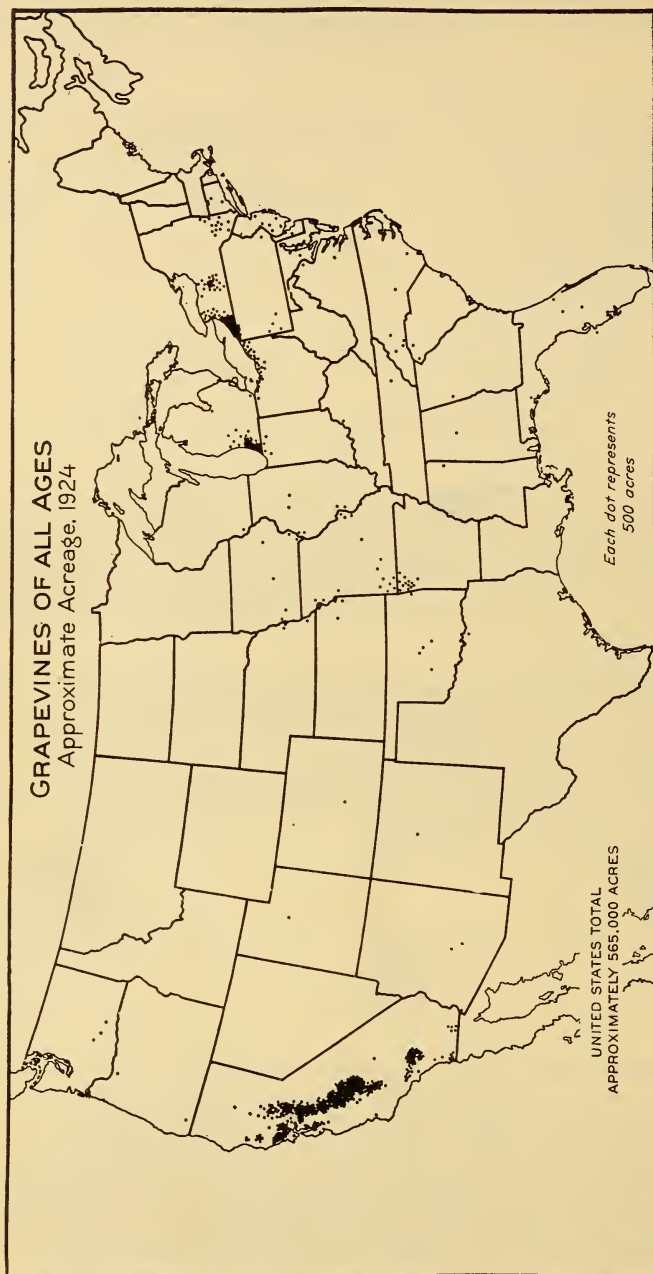


FIGURE 150.—About three-fourths of the Nation's acreage of grapes and nearly nine-tenths of the production are in California. The raisin district centers around Fresno, where the land is flat and the sunshine almost continuous. Juice grapes are more widely scattered, but especially excellent grapes are grown in the San Francisco Bay counties. Table grapes are grown in both the San Joaquin and Sacramento Valleys. A smaller grape center is found in southern California near San Bernardino. In the East the principal grape district extends along the southern shore of Lake Erie. Minor centers are in the finger lakes district of New York and in the southwestern corner of Michigan. These eastern grapes are mostly consumed fresh or made into grape juice.

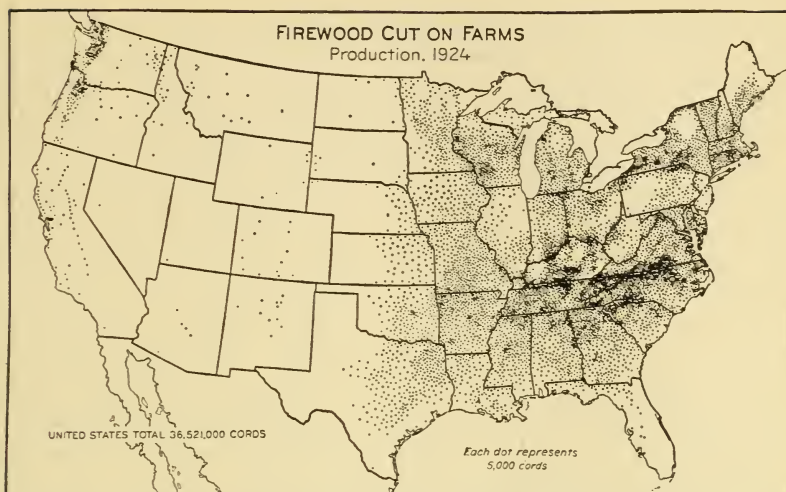


FIGURE 151.—The cutting of firewood by farmers is general throughout the originally forested portions of the United States, except in the rougher mountain sections where there are few farms. The greatest quantity cut is in the southern Appalachian region, extending onto the piedmont of Virginia, the Carolinas, and Georgia on the east and to the highland rim of Tennessee and Kentucky on the west. Large quantities are cut in New England and New York, in Michigan and Wisconsin, in Missouri, Arkansas, Mississippi, and northeastern Texas. That so small a quantity is cut in the Corn Belt, even in the originally forested Ohio and Indiana portions, also in New Jersey, Pennsylvania, and much of West Virginia, deserves notice. The reason is not clear.

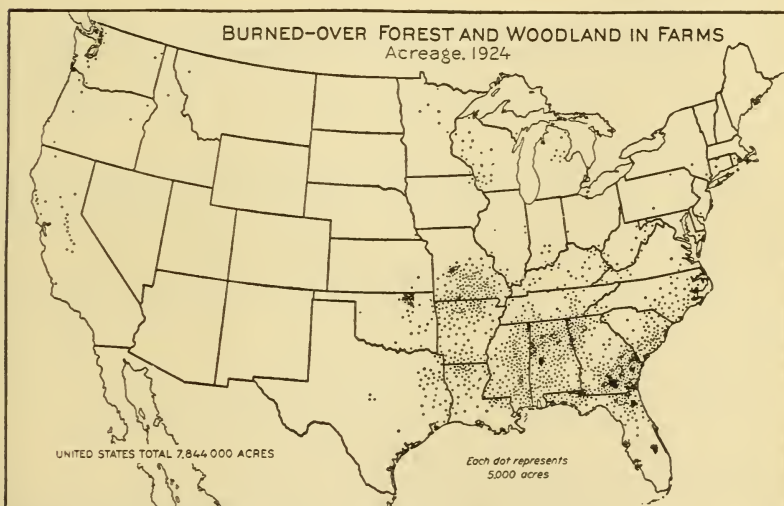


FIGURE 152.—The practice of burning over forest and woodland to improve the grazing is practically confined to the South. Apparently it is much less common in the Appalachian, the highland rim and piedmont areas than on the coastal plain, where the open pine forests afford better grazing. It appears to be common, however, in the Ozarks of Missouri and Arkansas and in Osage County, Okla. It seems to be an occasional practice in western Wisconsin and in parts of northern Wisconsin and Michigan. In these States, however, and in the Pacific Coast States the burning over of forest land in farms may be accidental and associated with destructive forest fires.

## FARM ANIMALS AND TRACTORS

The importance of the livestock industries in American agriculture is not commonly realized. In addition to all the pasture and grazing lands, which comprise considerably over half the land area of the United States, about 70 per cent of the crop acreage is utilized to grow feed for farm animals. This proportion of the crop area, varies greatly in different parts of the country. In 1919 it was about 84 per cent in the Corn Belt, 75 per cent in the corn and winter wheat belt, 70 per cent in the hay and dairy region, 53 per cent in the Cotton Belt, and averaged nearly 65 per cent in the six western regions, where wheat and fruit are important crops. However, only a small proportion, about 6 per cent, of the land in these western regions is in crops, as the dry climate compels the utilization of most of the land for pasture. Fully 90 per cent of all the land in these western regions is used to provide feed for livestock. It is clear, therefore, that great changes in livestock production may affect profoundly not only the utilization of the land in the several agricultural regions, but also land values, the sizes of farms, and the farming population.

The greatest changes in American agriculture since the World War have been in farm animals and their products. Crop and pasture acreage has remained practically stationary, but the number of horses and mules has decreased 25 per cent during the decade, the number of cattle has decreased over 20 per cent, and the number of swine has decreased fully 10 per cent. Nevertheless, the increase in agricultural production during the decade has been greater than the 15 or 16 per cent increase in the Nation's population. Clearly there has been increasing efficiency in the utilization of the Nation's land and livestock.

Despite the decrease in cattle and hogs, about two-thirds of this increase in agricultural production has consisted of animal products. The principal developments that have resulted in the increased production of animal products may, apparently, be classified into three groups:

- (1) The substitution of automobiles, trucks, and tractors for horses and mules, mostly in the North and West, with the resultant release of a large quantity of feed in these regions for meat and milk animals.

- (2) The increasing production of meat and milk per unit of feed consumed, which is owing principally to three causes:

- (a) Decrease in production of meat in the South and increase in the North and West, where animals are more efficient in transforming feed into human food.

- (b) Improvement in livestock, especially from this standpoint of efficient use of feed, in nearly all parts of the country.

- (c) Slaughter at an earlier age, young animals producing more meat per unit of feed consumed than old.

- (3) The much greater increase in production of milk and pork than of beef and mutton, which require more feed to produce a unit of human food than do milk and pork.

The following maps and diagrams present graphically the regional distribution of the several classes of farm animals on January 1, 1925, together with the changes in number of farm animals between 1920 and 1925, by counties, according to the census and between 1925, and 1929, by States, according to the estimates of the United States Department of Agriculture.



# LIVESTOCK ON FARMS Number, 1900-1930

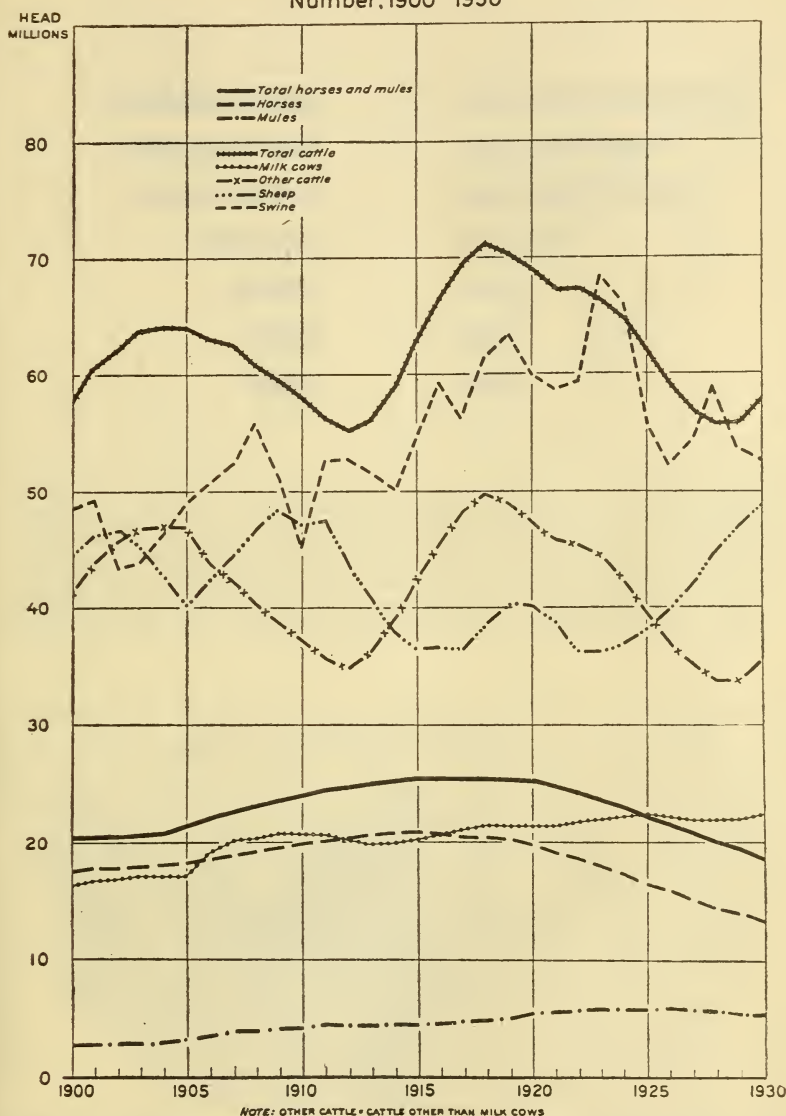


FIGURE 153.—The graph suggests that an upward trend in number of cattle, particularly beef cattle, may be expected during the next five or six years, and probably an increasing number of hogs. The feed required by this increasing number of cattle and hogs is likely to more than balance the feed released by the decline in horses and mules, and the gradual recovery in crop acreage since 1924 may be expected, therefore, to continue for several years longer. Most of this increase in crop acreage, however, is likely to occur in the Great Plains region and the Northwest and not in the Southern and Eastern States, where 15,000,000 to 20,000,000 acres of plow land still lie idle. The curves represent estimates by C. L. Harlan, Bureau of Agricultural Economics

## FARM ANIMALS: NUMBER AND VALUE

United States, January 1, 1925

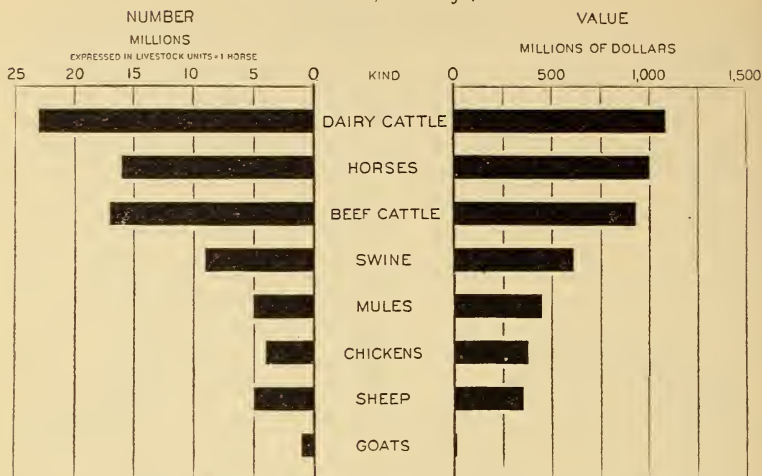


FIGURE 154.—Cattle constituted the leading class of livestock in the United States on the basis of value, in 1925. Dairy cattle are now worth considerably more than beef cattle. Between 1920 and 1925 the total value of cattle in the United States decreased 45 per cent because of a decrease in number of 9 per cent and in value per head of 39 per cent; whereas the value of all horses decreased 44 per cent, largely because of lesser numbers, but probably in part because of increasing age. Cattle constituted 42 per cent of the value of all farm animals January 1, 1925, horses and mules 30 per cent, swine 13 per cent, sheep and goats 8 per cent, and poultry nearly 8 per cent. The swine, however, produce annually pork and lard that have a value greater than that of the beef and veal from the cattle. (One livestock unit equals 1 horse or mule, 1 mule, 2 steers or heifers, 1.6 beef cows, 0.9 dairy cow, 4 calves, 5 hogs in Corn Belt, 4 hogs elsewhere, 6 sheep, 100 chickens.)

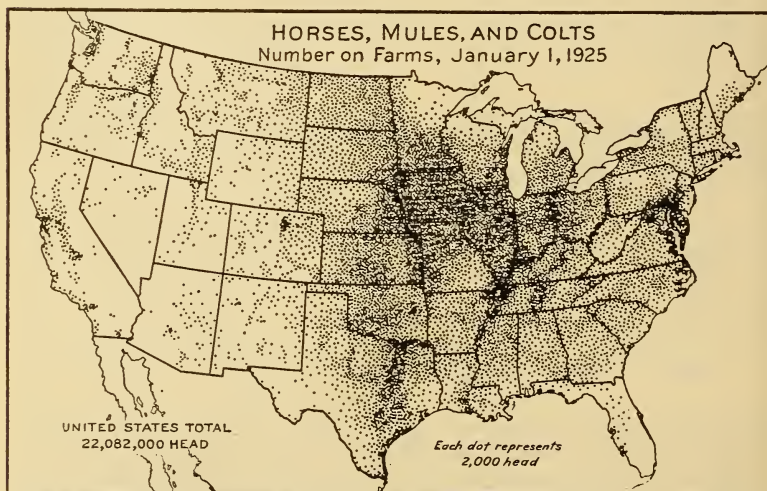


FIGURE 155.—Nearly one-quarter of the horses and mules in the United States are in the Corn Belt, and over three-quarters are in the humid eastern half of the country. The lesser density in the Cotton Belt and sections of the corn and winter wheat belt is owing chiefly to the smaller acreage in crops. (Fig. 14.) The acres of crops per mature horse and mule in the Cotton Belt are practically the same as in the Corn Belt, or in the hay and dairy belt (about 19 acres). The number of horses and mules in cities and villages (not on farms or ranges) was 2,084,000 on January 1, 1920, but probably was only 1,400,000, or less, in 1929.

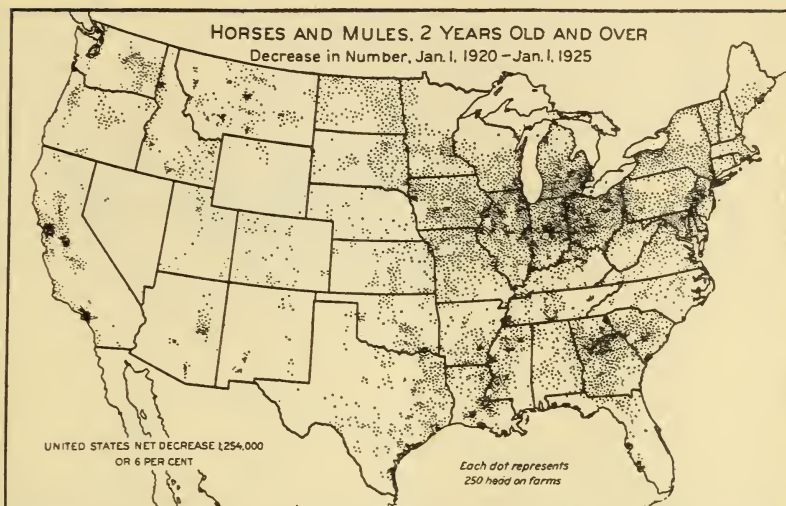


FIGURE 156.—The greatest decrease in work horses and mules has taken place in the eastern and central Corn Belt, in the hay and dairy region, and in California—in brief, where the increase in tractors was greatest. But a notable decrease occurred also in Georgia and South Carolina and in other Southern States, which was associated with the decrease in total crop land harvested (fig. 16), and can be attributed only partly and indirectly to the tractor and automobile. Allowing five horses as equivalent to a tractor, it would appear that a decrease in power available for field work has occurred in the Corn Belt as well as the Cotton Belt, but undoubtedly many of the horses were used primarily for transportation and have been fully replaced by automobiles

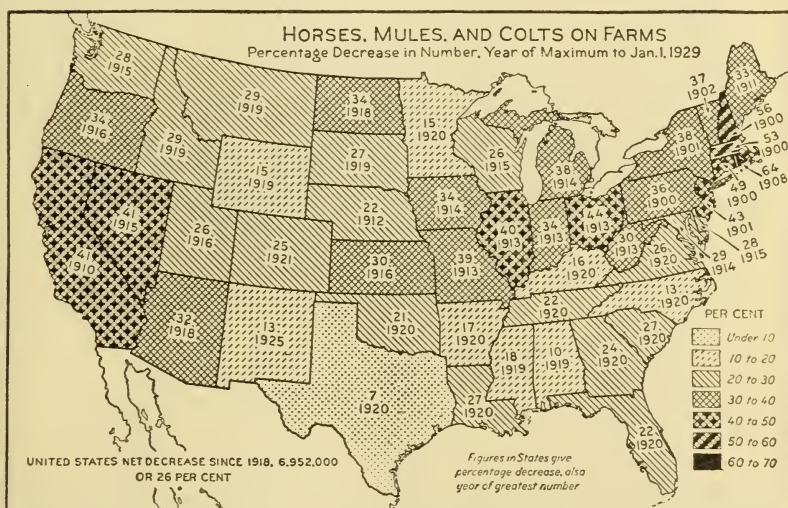


FIGURE 157.—The decrease in horses and mules, considered jointly and including colts, between the year of greatest number (since 1900) and the year 1929, exceeds 50 per cent in New Hampshire, Massachusetts, and Rhode Island, and is over 25 per cent in nearly all other Northern and Western States. Had the automobile and tractor not intervened, it is probable there would now be several million more horses and mules in the United States instead of 7,000,000 less than in 1918



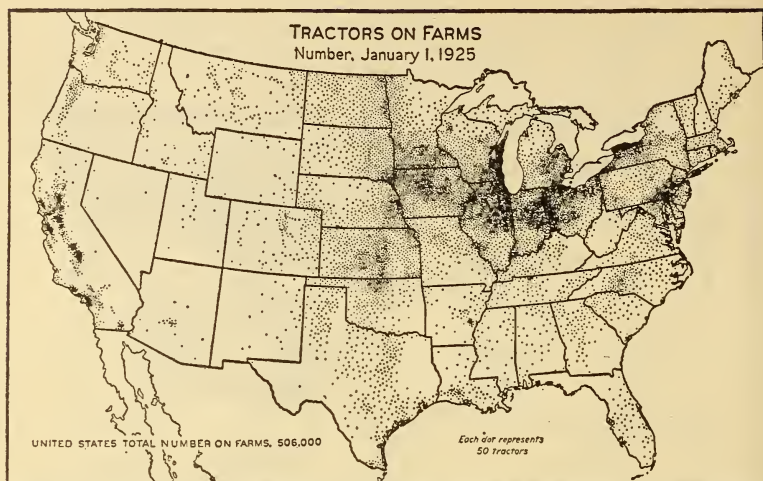


FIGURE 158.—Tractors are most numerous in the Corn Belt, in the southern portion of the hay and dairy region, in the spring and winter wheat regions, and in California, where fertile soils and progressive agriculture are found. In the spring-wheat region and California, in 1925, about 1 farm in 5 had a tractor; in the Corn Belt about 1 farm in 6; elsewhere in the United States 1 farm in 7 to 20, except in the States south of the Ohio and Potomac Rivers, where only 1 farm in 30 to 1 in 100 had a tractor. The acreage of cotton a farmer can handle is not limited by the acreage he can plow and plant, as with wheat, or can cultivate, as with corn, but by the quantity he can pick, and a tractor can not help in picking cotton so long as it is picked by hand.

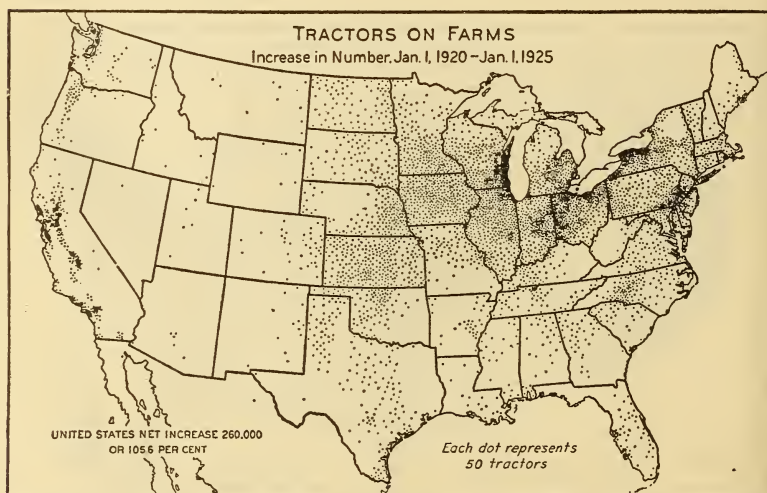


FIGURE 159.—The increase in tractors between 1920 and 1925 occurred mostly in the Corn Belt and in the more fertile portions of the hay and dairy region, in southeastern Pennsylvania, in the hard winter-wheat region, and in California. The increase was notable near the large industrial centers, and less notable on the large farms in the central West, where, however, larger tractors are used than in the East. The increase in the South was small, except in central North Carolina and in Texas.

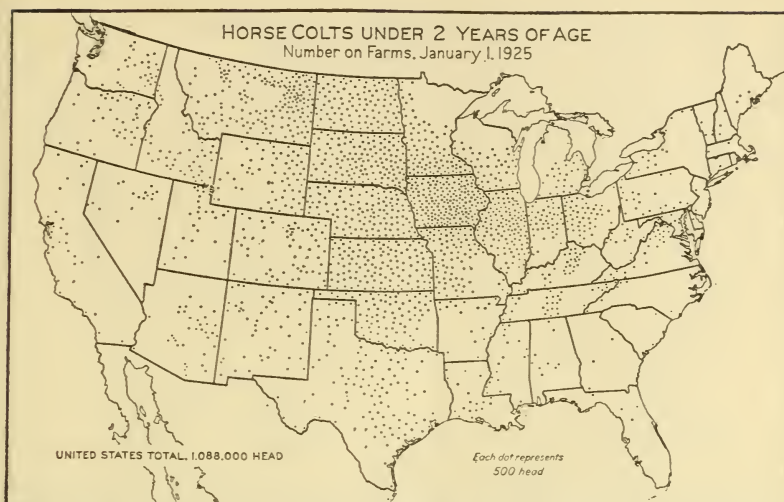


FIGURE 160.—About one-third of the horses in the United States are raised in the Corn Belt, one-fourth in the spring-wheat region, one-fifth in the winter-wheat region, Texas, and Oklahoma, and one-sixth in the grazing and irrigated-crops region. These are the regions of surplus grain and cheap forage. Comparatively few horses are raised in the Cotton Belt, or the hay and dairy region because these are regions of deficient grain production and feed must be shipped in at heavy expense. It is more economical to ship the mature horses into these deficiency areas than to ship the grain to grow them

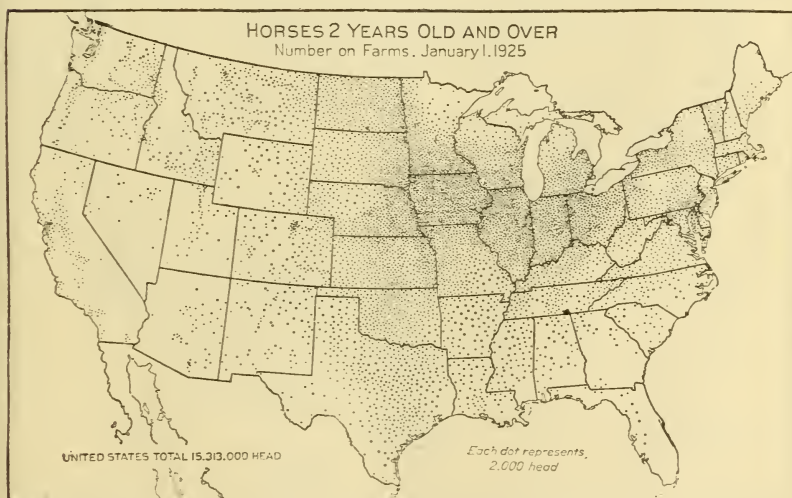


FIGURE 161.—Over one-quarter of the mature horses (2 years old and over) in the United States are in the Corn Belt, one-sixth in the hay and dairy belt, and one-eighth in the spring-wheat region. Over three-quarters are in the humid eastern half of the country. The small number of horses in the Cotton Belt and in parts of the corn and winter-wheat region is owing in large measure to the preference for mules as work animals in these regions and to a less dense crop acreage. The number of horses in cities and villages (not shown on the map) was 1,705,611 on January 1, 1920, or about one-tenth the number of mature horses on farms, but now is probably not over 1,000,000

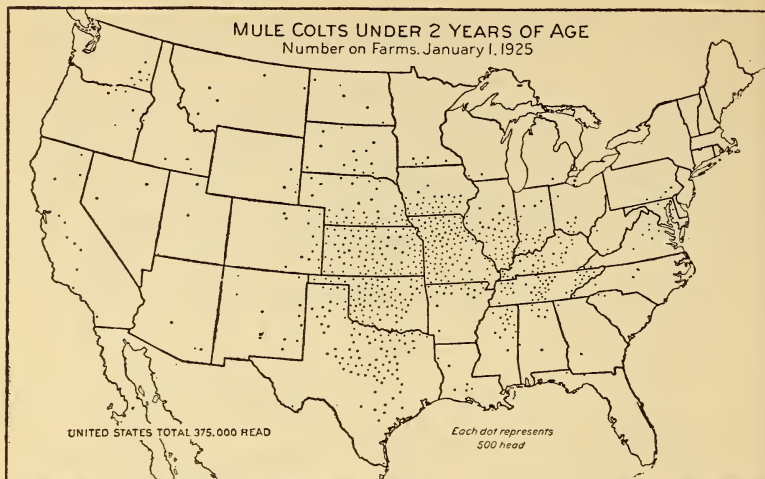


FIGURE 162.—Most of the mules are raised in Texas, Oklahoma, Kansas, Missouri, southern Illinois, Kentucky, and Tennessee, the centers of production being about 300 miles south of the centers of horse production. This may be due in part to the adaptation of the mule to warmer temperature than the horse, and in part to the shorter distance and smaller cost of transportation to the Cotton Belt, where most of the mules are sent. (Fig. 163.) Formerly Kentucky and Tennessee were the leading States in mule production, but now a much greater number is raised in the States to the west where feed is cheaper

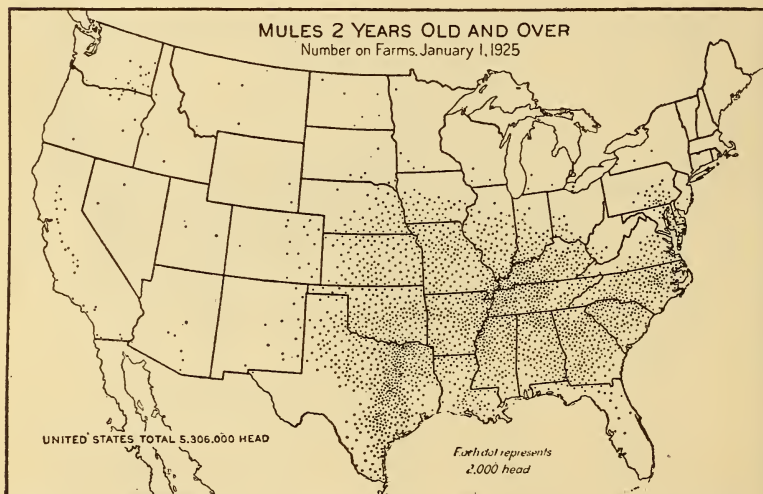


FIGURE 163.—About five-sixths of the mature mules (2 years old and over) in the United States are in the Cotton Belt and the corn and winter-wheat belt. In the eastern Cotton Belt (east of Texas and Louisiana), where negro farmers are most numerous (figs. 313 and 314), there are over twice as many mature mules as horses. The popularity of mules is also increasing in the North and West. Whereas the number of horses over 2 years of age on farms in the United States decreased 11 per cent between 1920 and 1925 the number of mules increased 14 per cent. This rate of increase was almost as great in the North as in the South. However, since 1926 the number of mules has also been decreasing in most of the States



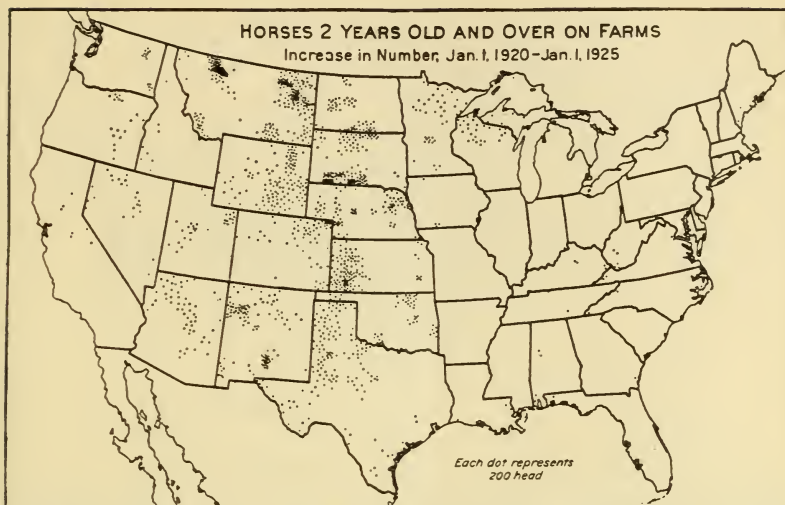


FIGURE 164.—The increase in work horses between 1920 and 1925 was practically confined to the grazing and irrigated-crops region and the portions of the spring-wheat and winter-wheat regions along its eastern margin. A small increase occurred also in the upper Lakes area of Michigan, Wisconsin, and Minnesota. Along the eastern margin of the grazing and irrigated-crops region the use of large units of power per man (either of horses or tractors) resulted in the expansion of grain production to the least arid of the grazing land. This is the only part of the United States in which an appreciable increase of crop acreage occurred. (Fig. 15.)

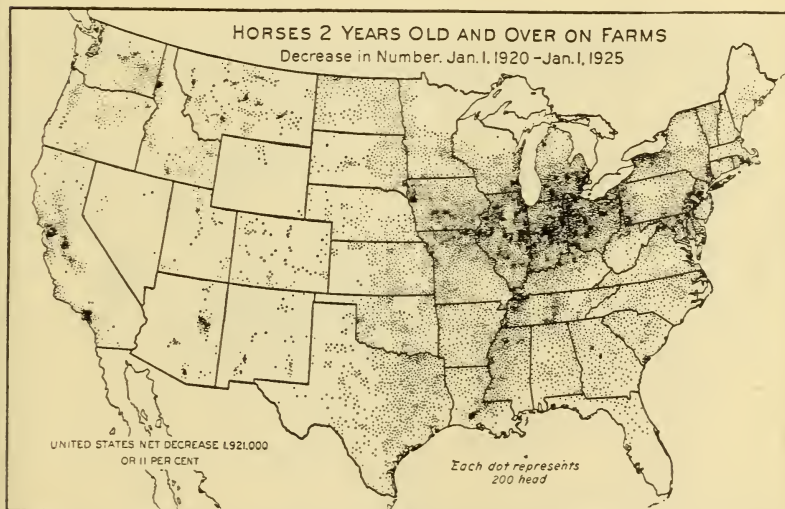


FIGURE 165.—The decrease in work horses between 1920 and 1925 took place not only in the Corn Belt, the hay and dairy region, and California, where tractors increased notably, but also in the South, where an increase of mules took place, except in Georgia and South Carolina (fig. 168), and where the crop acreage decreased. (Fig. 16.) The decrease of horses was particularly heavy in Mississippi and eastern Texas. The small decrease shown in several counties in Illinois, Iowa, and southern Wisconsin is probably owing to incomplete enumeration in 1920, and not to a lesser decrease than in adjacent counties. Since 1925 the decrease in work horses has continued, the estimated decrease being 15 per cent.

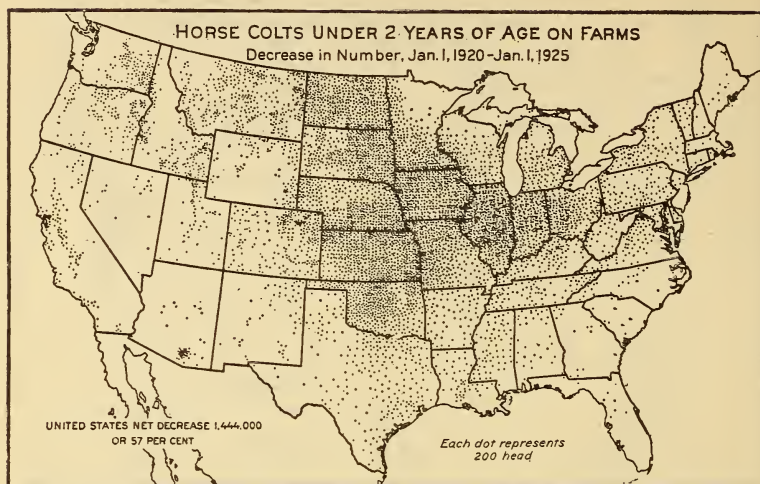


FIGURE 166.—Between 1920 and 1925 the decrease in horse colts in the United States was 57 per cent, whereas the decrease in mature horses was only 11 per cent. This decrease in colts was practically universal, and was greatest in number where the greatest number of colts are raised—in the Corn Belt, the wheat regions, and the Great Plains. This rapid decrease presages a continued decline in mature animals. The decrease of horses, mules, and colts is now about 700,000 a year

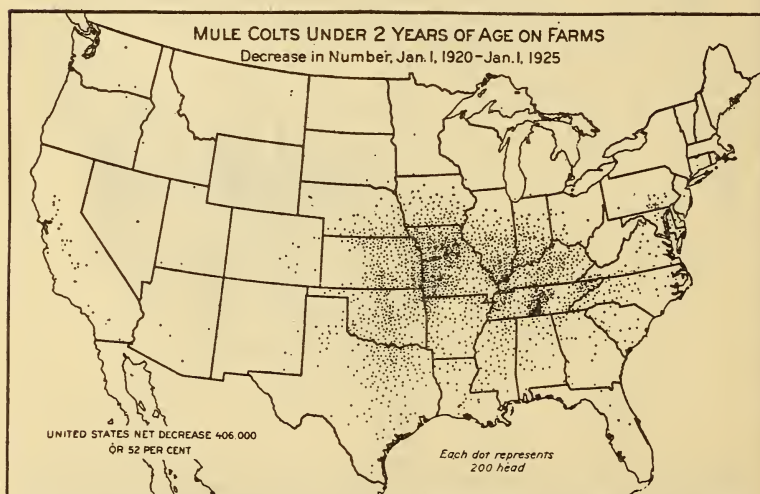


FIGURE 167.—The number of mule colts decreased between 1920 and 1925, especially in the later years of the period, and by 1925 there were only about half as many in the United States as five years before. The decrease was greatest, necessarily, in the mule-producing region, which extends from central Kansas through Missouri to Tennessee, Kentucky, and southern Indiana. This decline in mule colts was proportionately almost as great as in number of horse colts

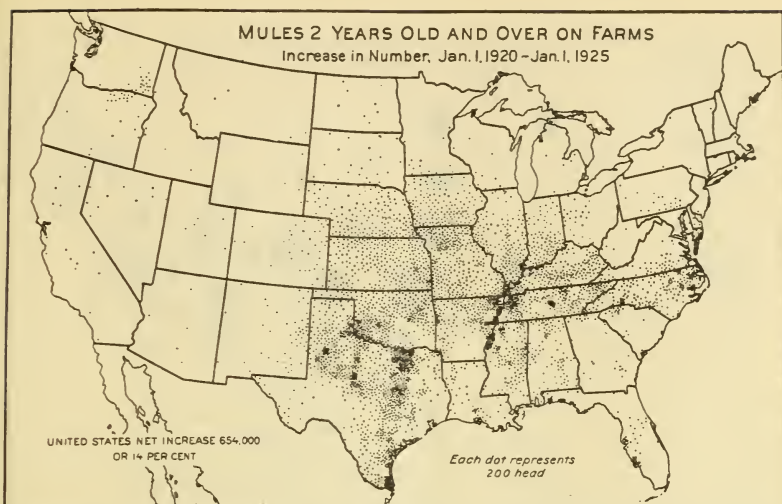


FIGURE 168.—The increase in work mules was notable in most of Texas, Oklahoma, and Kansas, extending eastward in the corn and winter-wheat belt to the Atlantic Ocean, and there was clearly a tendency for mules, as well as tractors, to replace horses in the Corn Belt. This widespread and locally large increase in mules is surprising during a period of rapid mechanization of agriculture, and is probably transitory, as not enough mule colts are being raised to replace the animals that die or become useless. (Fig. 169.) However, the rising prices of mules during recent years suggest that the time may be approaching when the raising of mule colts may again be profitable.

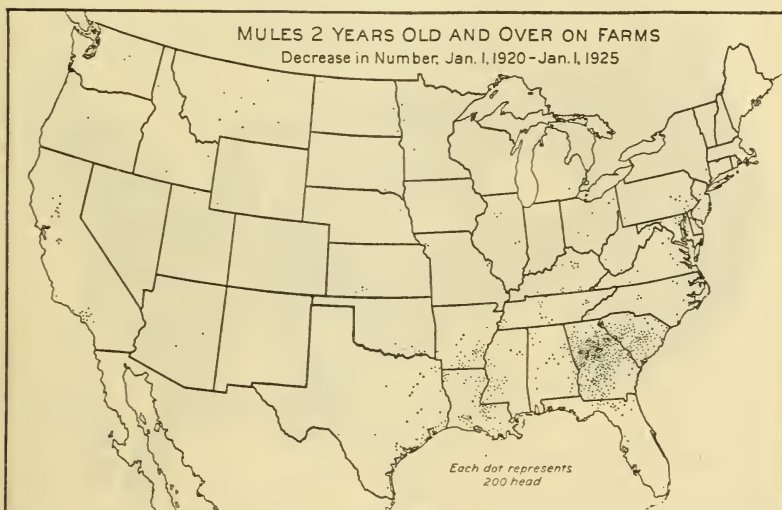


FIGURE 169.—The decrease in work mules between 1920 and 1925 was practically confined to the eastern and central Cotton Belt and was notable in Georgia and South Carolina. The decrease in these two States was owing to the great decline in crop acreage consequent in part upon the devastating advance of the cotton boll weevil across these States and in part to the reduction in corn acreage. (Figs. 40 and 53.) This reduction in corn acreage is, in turn, assignable largely to the increase in feed in the Northern States arising from the reduction in horses and mules which caused increased production of pork, milk, and beef, and made competition on the part of the South, with its higher priced corn and other feed, increasingly difficult.



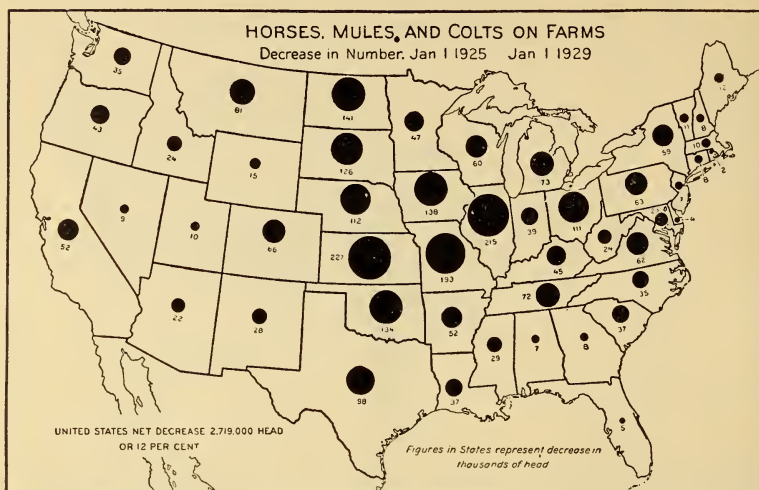


FIGURE 170.—Since 1925 a decrease in horses and mules, considered jointly and including colts, has occurred in every State. In general, the greatest decrease has been in those localities in which there were the most animals in 1920, that is, in the Corn Belt, the wheat regions, and in Texas; but proportionately the decrease was greatest in New England. The decrease was smallest in the Cotton Belt, excluding South Carolina and Louisiana. For the entire United States the decrease in the four years was about 12 per cent, which is an average of 3 per cent a year

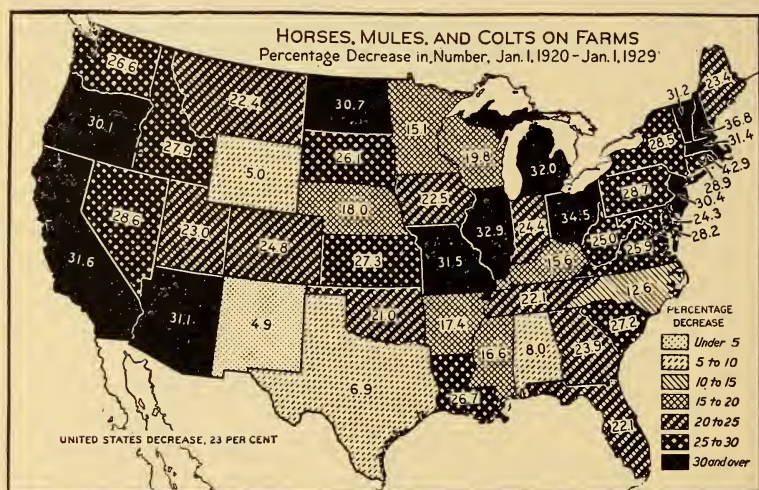


FIGURE 171.—In the nine years 1920 to 1929, the number of horses and mules on farms, including colts, in the United States decreased 23 per cent. The decrease was heaviest in colts, and after allowance is made for the lesser quantity of feed per animal required by the colts it appears that the decrease in feed required by all horses and mules on farms has been fully 20 per cent in nine years. If the decline in horses and mules in cities be included, the decrease in feed required becomes about 25 per cent, equal to 20,000,000 acres of crops

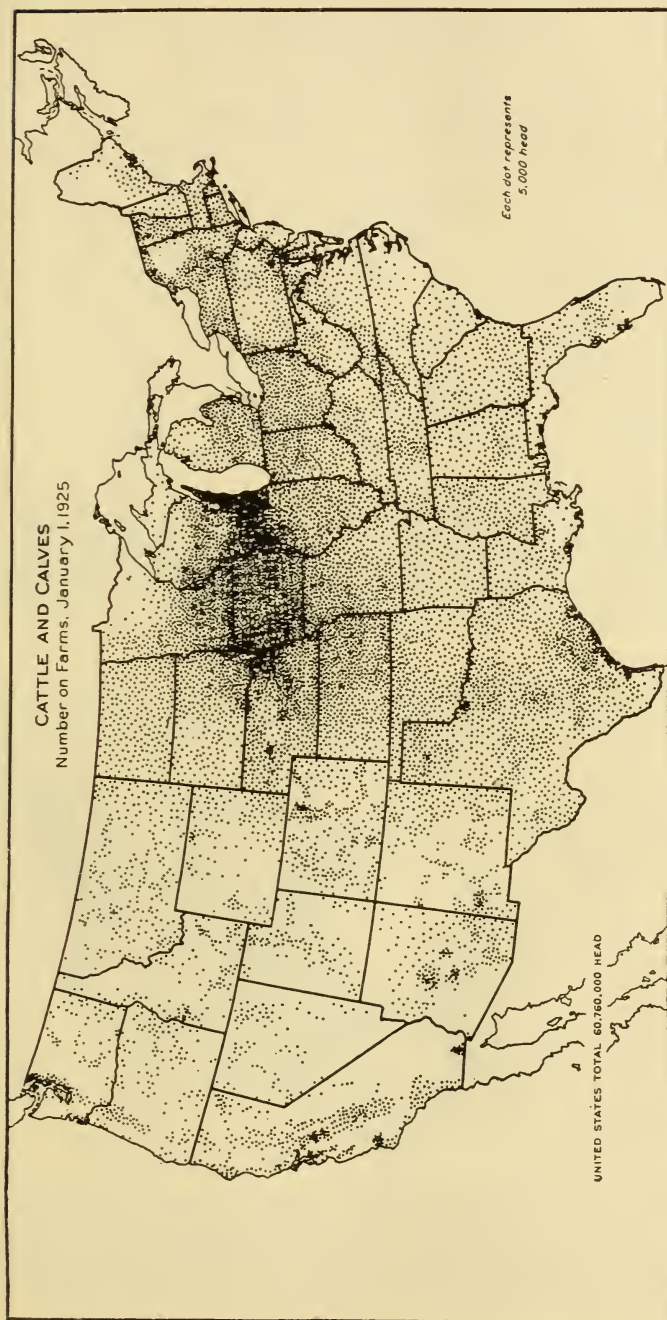


FIGURE 173.—Cattle are more evenly distributed over the United States than any other kind of livestock. The densest area is in southern Wisconsin and northern Illinois. Iowa, northern Missouri, eastern Nebraska, southeastern South Dakota, and southern Minnesota. On January 1, 1925, there were about 13,000,000 cattle in the Corn Belt, or 55 to the square mile; 11,000,000 in the hay and pasture region, or 31 to the square mile; 9,000,000 in the corn and winter-wheat belt, or 30 to the square mile; 7,000,000 in the Cotton Belt, or 17 to the square mile; and 8,000,000 in the two wheat regions, or about 20 to the square mile. The Western regions had about 11,000,000 cattle, an average of 9 to the square mile. In Iowa there were nearly 80 cattle to the square mile.

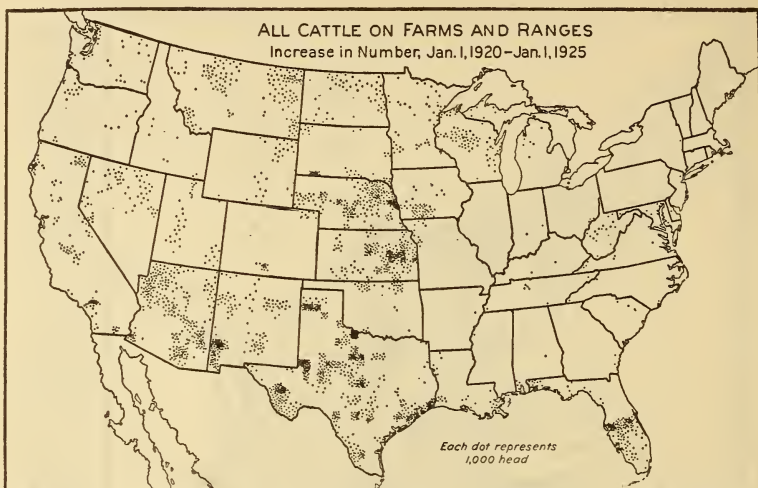


FIGURE 173.—The increase in number of cattle between 1920 and 1925 was almost confined to counties in the Great Plains States and westward. In only eight States is a net increase in cattle indicated by the census figures—Kansas, Nebraska, North Dakota, Montana, Washington, Nevada, Arizona, and Florida. From Minnesota to New England most of the cattle are dairy cattle, yet no increase is shown, except in the upper Great Lakes area, despite the increase in milk production. (Fig. 188)

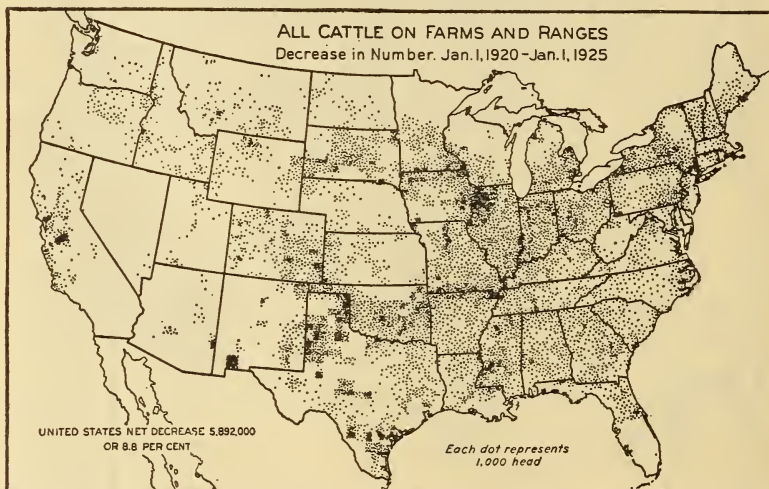


FIGURE 174.—The decrease in cattle between 1920 and 1925 was almost universal in the eastern, originally forested portion of the United States, which is largely a feed-deficit region. A notable decrease occurred also in the Texas Panhandle and Colorado, where cash crops have been pressing in on the pasture lands, and in central California and Idaho. The net decrease in number of cattle in the Nation was nearly double the decrease in horses and mules, but the percentage decrease was smaller



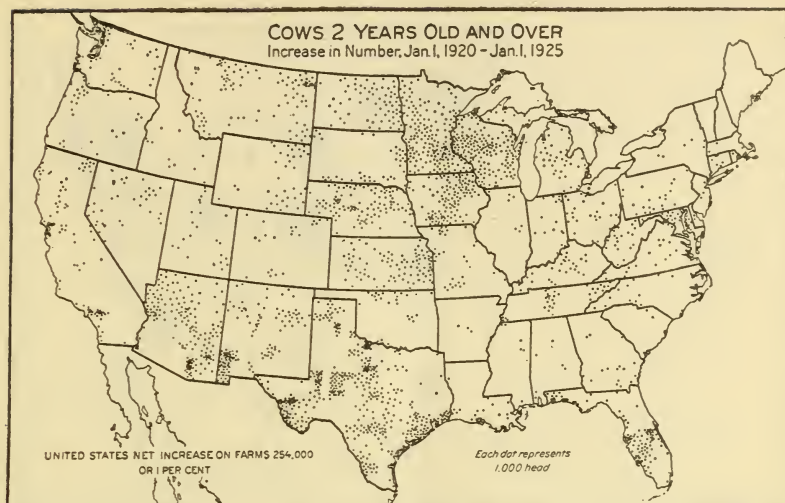


FIGURE 175.—The increase in number of cows between 1920 and 1925 took place mostly west of a line from Chicago to Kansas City, Fort Worth, and Houston, and was notable in Wisconsin, Minnesota, and Iowa (mostly dairy cows), and in a number of counties in Texas and Arizona (mostly beef cows). In Colorado and Idaho, however, as in most of the Texas Panhandle counties, the decreases exceeded the increases. (Fig. 176.) An increase in number of cows may also be noted in southern Florida. Increases exceeded decreases in western North Carolina, eastern and central Tennessee, Maryland, West Virginia, central Kentucky, and northern Michigan.

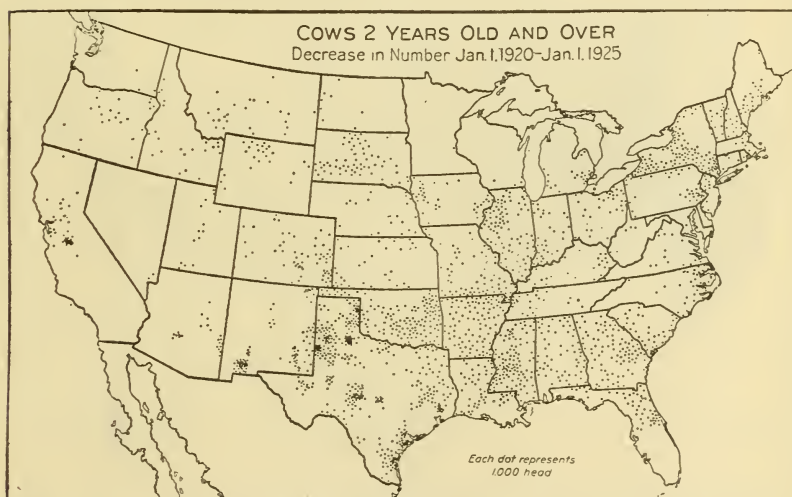


FIGURE 176.—The decrease in number of cows, between 1920 and 1925, took place mostly east, southeast, and southwest of Chicago. In the eastern and central Cotton Belt the decrease was notable and almost universal. The decrease was heavy in most of New York and in northern New England. Many counties in Indiana, Illinois, and Missouri showed a decrease, and heavy decreases occurred in many of the counties in the Texas Panhandle, and in several counties in California. Nevertheless, for the Nation as a whole there was an increase of about 1 per cent. Up till 1925 the breeding stock, apparently, was not depleted except in the South.

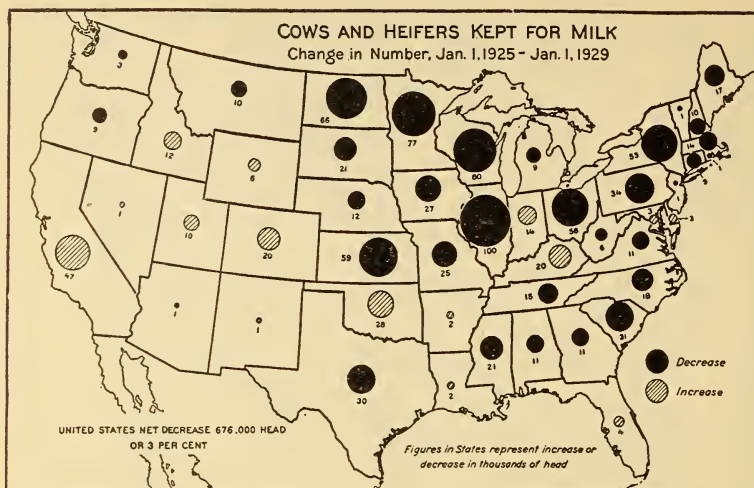


FIGURE 177.—Since 1925 the number of cows kept for milk has decreased in the major dairying States, except California, whereas the production of milk has increased. The number of milch cows and heifers decreased in 29 of the 37 Eastern and Central States, whereas in the West the number of cows increased in 7 of the 11 States. For the Nation as a whole the net decrease in cows, of both dairy and beef breeding, is estimated at 3 per cent during the four years, while milk production increased probably 6 to 7 per cent

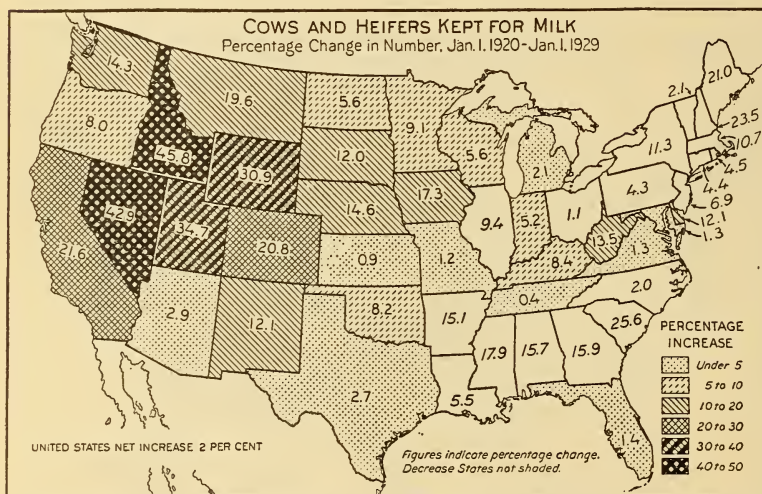


FIGURE 178.—Viewing the period from 1920-1929 as a whole, it appears that the number of milk cows and heifers has increased considerably in a wedge-shaped area extending from a point near Chicago westward to New Mexico and California on the south, Montana and Washington to the north. On the other hand, there has been a decrease in the Northeastern States and in the "Old South" (North Carolina to Arkansas and Louisiana). But where this decrease in cows does not exceed 10 per cent, it is likely that an increase has occurred in milk production. For the entire United States the estimates indicate that cows kept for milk increased about 2 per cent and milk production probably 25 per cent or more

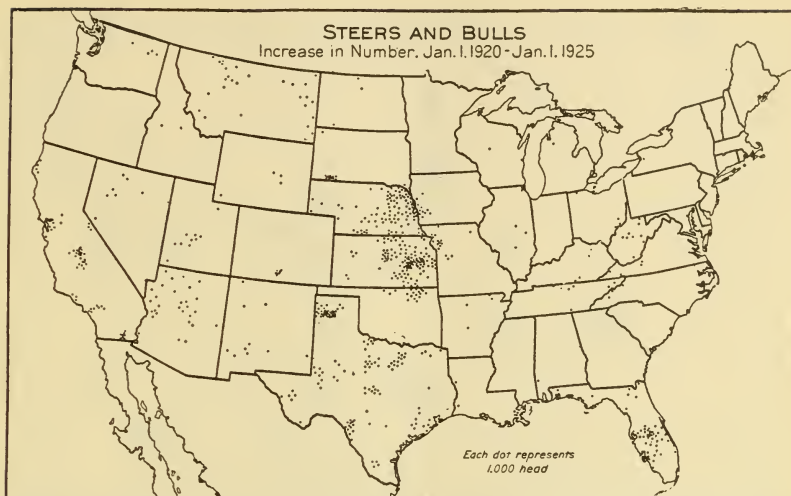


FIGURE 179.—The increase between 1920 and 1925 in number of steers and bulls (considered jointly) took place mostly in Nebraska and eastern Kansas, in scattered counties in Texas, New Mexico, Arizona, California, and Montana, and in southern Florida. The increase in Nebraska and Kansas is, doubtless, owing in part to the reaction from the war-time period of wheat production; some of the increases in Texas are probably attributable to the changes in headquarters of large ranches from one county to another, since the census assigns all the cattle on a ranch to the county in which the headquarters are located. The significant feature of the map is the small number of counties in the United States that show an increase

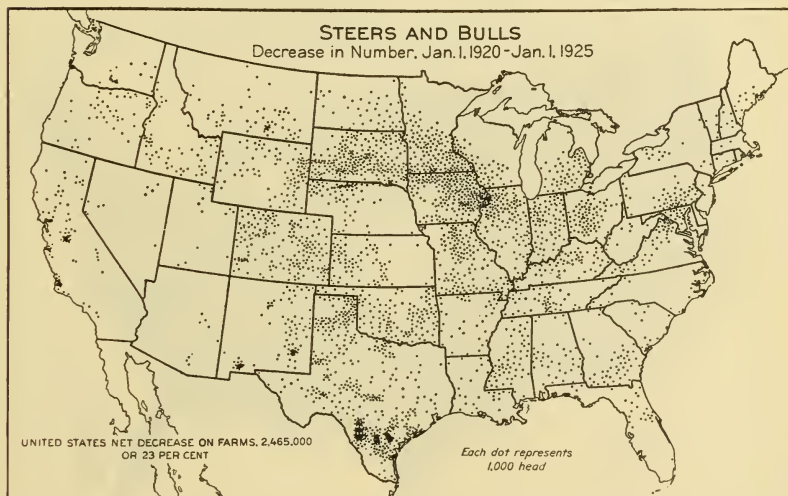


FIGURE 180.—The decrease in steers and bulls between 1920 and 1925 was almost universal. Particularly notable was the decrease in northern and eastern Iowa, southern Minnesota, and South Dakota, where dairying was developing at the expense of beef production. The same is true, but in less degree, of much of Illinois, Indiana, Ohio, and Michigan. A decrease occurred also in most of the Great Plains region, becoming most intense in southern Texas, where cotton growing has developed recently. These years, 1920-1925 are near the close of the downward trend in the beef-cattle cycle, the bottom having been reached in 1923. The number of cattle is now tending upward



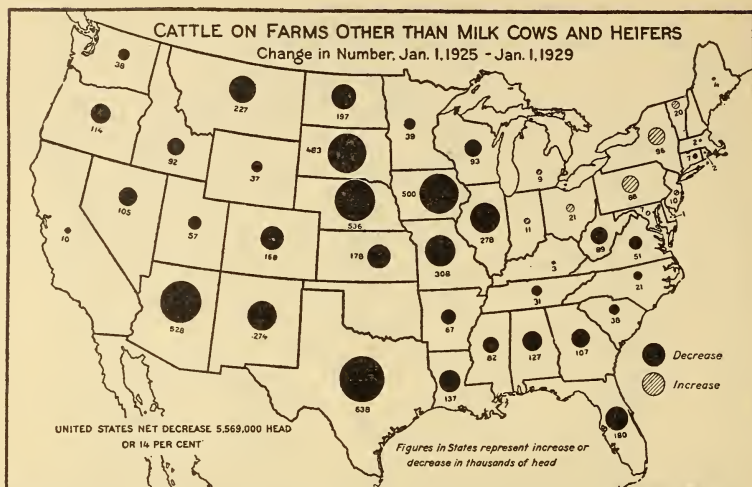


FIGURE 181.—From 1925 to 1929 the decrease in cattle other than dairy cows continued, and was very heavy in the central and western Corn Belt, the wheat regions, and the Southwest. An increase is indicated, on the other hand, in most of the Northeastern States, including Michigan, Ohio, Indiana, and Kentucky, but these cattle, doubtless, are mostly dairy bulls and calves. For the Nation the net decrease between 1925 and 1929 was 14 per cent, but during 1929 a slight increase occurred

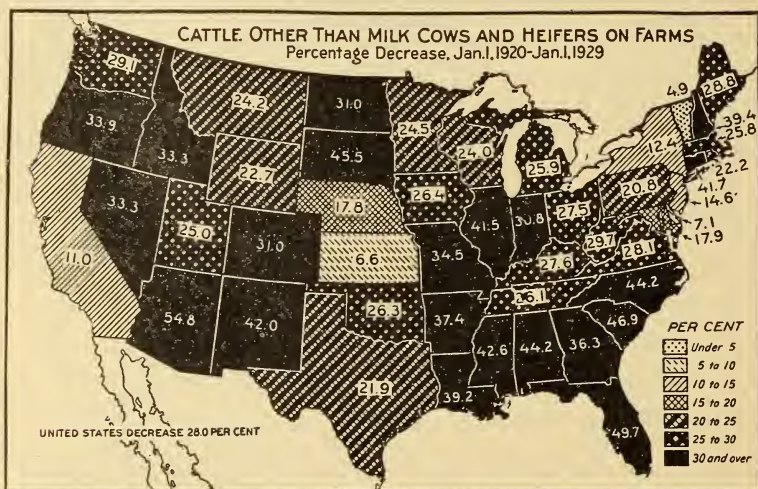


FIGURE 182.—Every State shows a decrease in number of cattle other than cows and heifers kept for milk between 1920 and 1929. The greatest proportionate decrease was in the eastern and central Cotton Belt (where it averaged over 40 per cent), also in Arizona, New Mexico, Illinois, and South Dakota. The least decrease was in the dairy States of the Northeast, and in Kansas, Nebraska, and California. In the Nation as a whole dairy cattle increased 2 per cent, whereas other cattle decreased 23 per cent



FIGURE 183. — Beef cattle constitute about half the total number of cattle in the United States, but less than half the value. Over 8,000,000 beef cattle (including calves) are in the Corn Belt, and as many more in the Great Plains region, these two regions together having half the beef cattle in the country. A large number of beef cattle will be noted in the humid-subtropical crops belt and in the southern portion of the Cotton Belt, in the Appalachian valleys, in eastern Kansas, in the mountain parks and valleys of Colorado, Utah, and Idaho, on the plateaus of southwestern New Mexico and southeastern Arizona, and in California. Over 40 per cent of the beef cattle are in the western half of the United States.

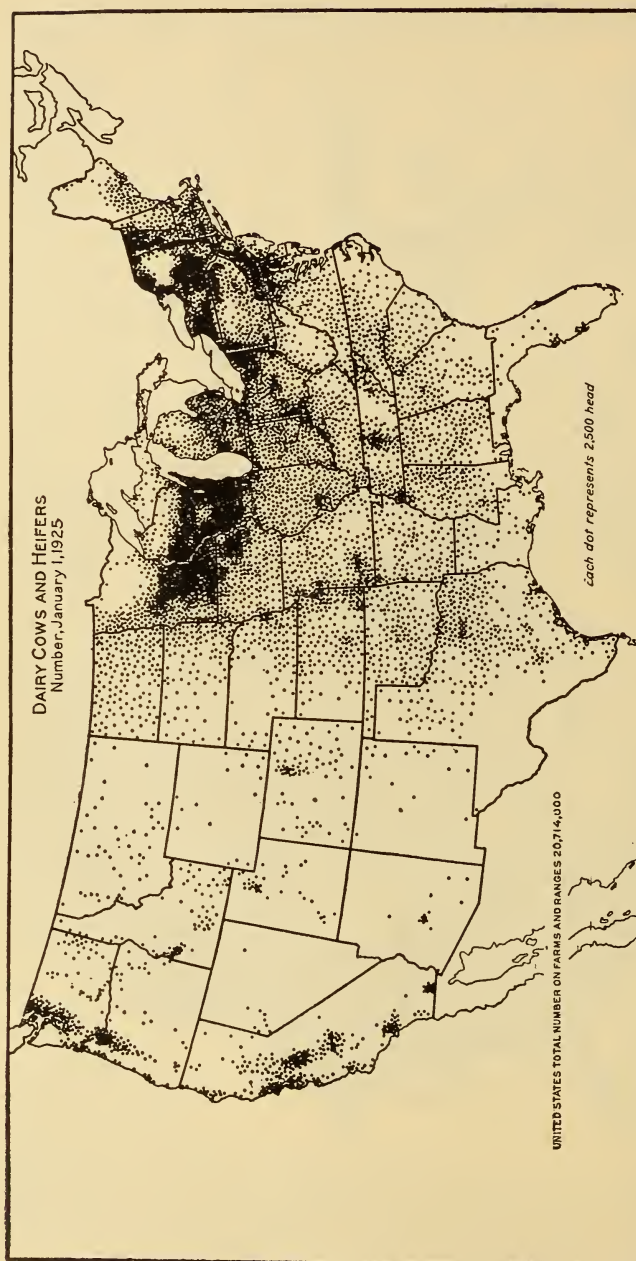


FIGURE 184.—About half the dairy cattle in the United States are in the hay and dairy region and the adjacent northern and eastern margins of the Corn Belt. Other dense areas will be noted in southeastern Pennsylvania, which is really Corn Belt country, and in the valleys of the north and south Pacific regions. In the Cotton Belt, especially the northern portion, dairy cattle are more numerous than beef cattle, but in most of the grazing and irrigated-crops region they are much less numerous. Nine-tenths of the dairy cattle are in the humid eastern half of the country. The dairy cattle in cities and villages (not on farms and ranges) numbered 1,220,564 in 1920, which is less than 4 per cent of all dairy cattle and calves in the United States.



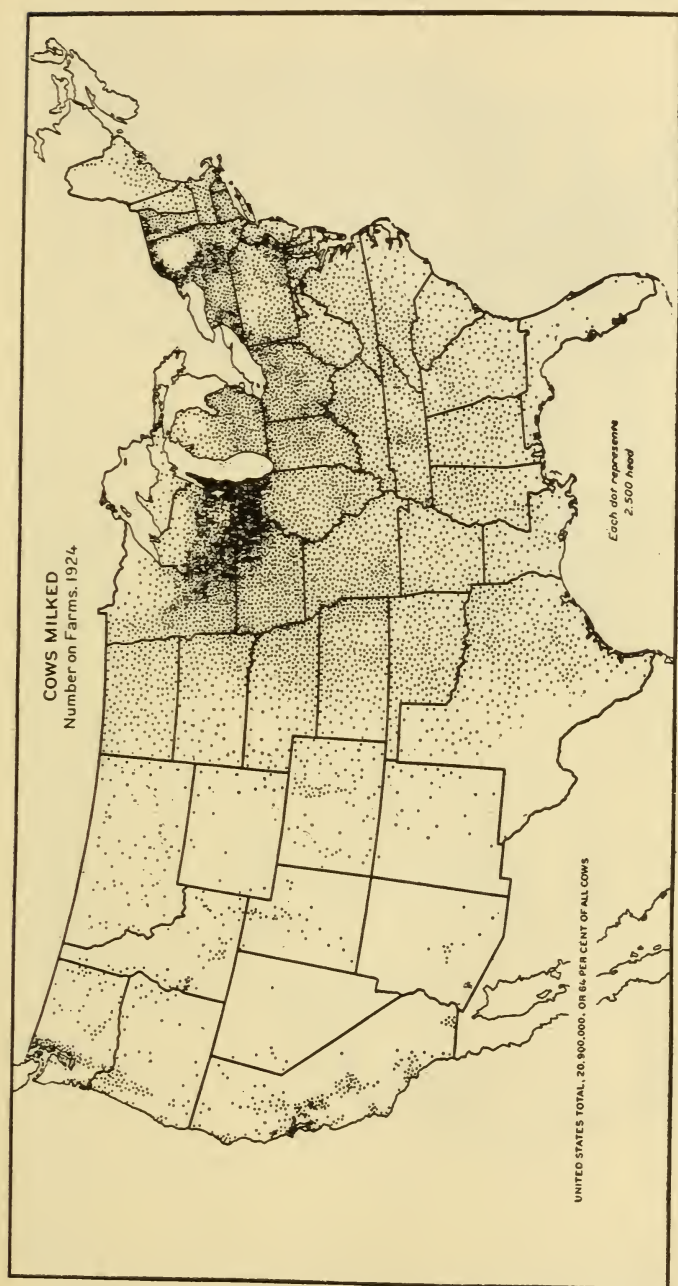


FIGURE 185.—Southern Wisconsin has the greatest number of milk cows per square mile, followed closely by southeastern Minnesota, northeastern Iowa, New York, and Vermont. In these States and adjoining districts, also along the Pacific coast and in the irrigated valleys of the West, nearly all the cows milked belong to the dairy breeds. Elsewhere in the West and in much of the Cotton Belt, the corn and winter-wheat belt, and even in the southern Corn Belt, most of the cows milked belong to the beef breeds or are of indeterminate origin. Over one-fifth of the cows milked in 1924 were of beef breeds. (The figures used in this map include total number of cows milked on all farms during all or any part of the year 1924)

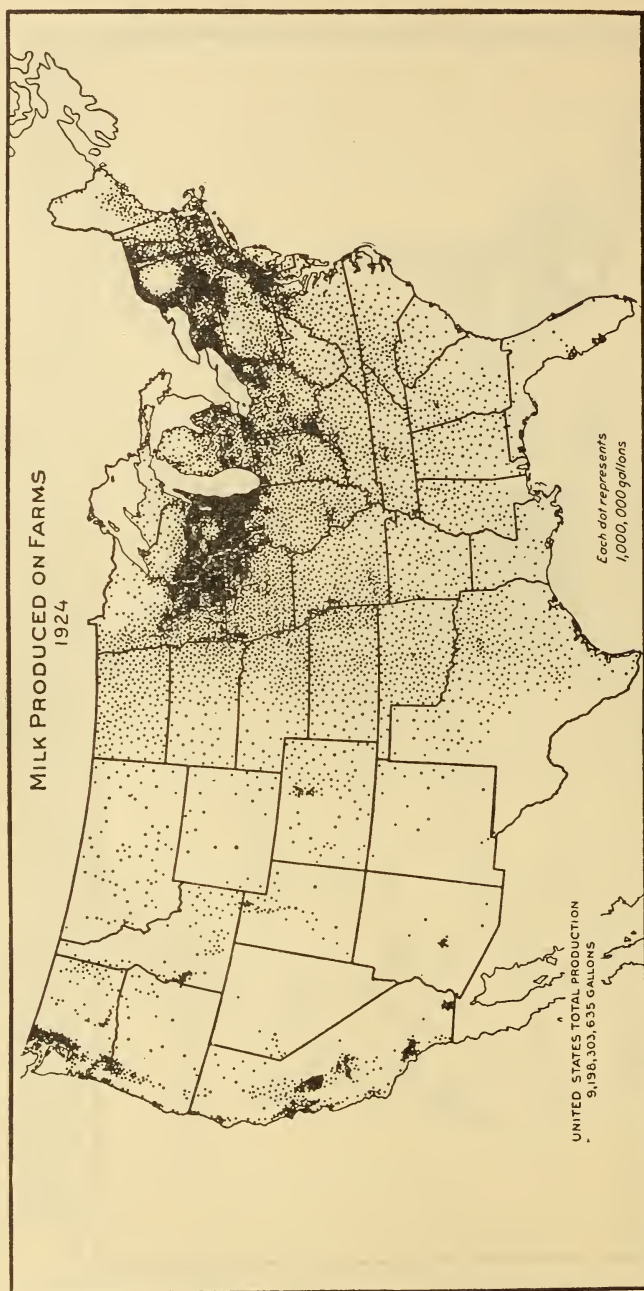


FIGURE 186.—The production of milk is even more concentrated in the hay and dairy region than is the number of cows milked. In this region about half of the urban population of the Nation lives, and a third of the total population. In it about one-third of the Nation's milk is produced, half east of Lake Michigan and half west. Another milk-production belt, but of much lesser importance, includes the valleys of California and extends northward through western Oregon and Washington to British Columbia. Still lesser centers adjoin the large cities—Washington, Cincinnati, St. Louis, Kansas City, and Denver can be readily located on the map.

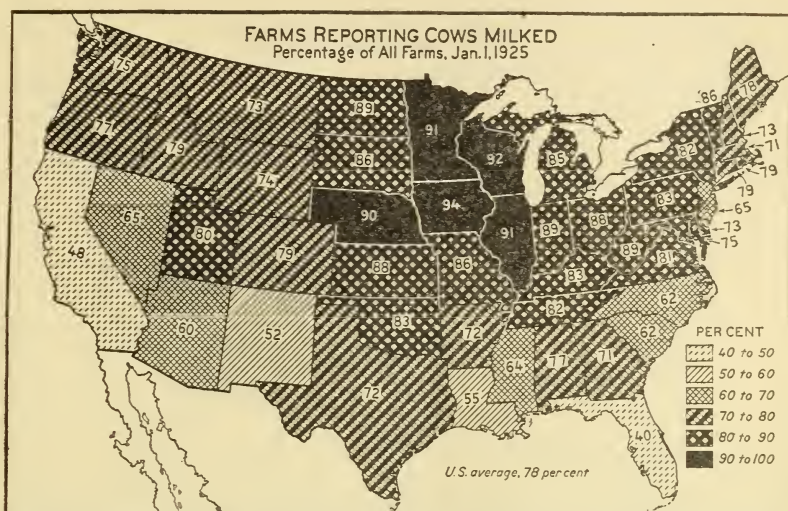


FIGURE 187.—West and northwest of Chicago, as far as the semiarid plains, about 90 per cent of the farmers milk cows. East and southeast of Chicago, almost to the Atlantic coast, but north of the Cotton Belt, the proportion ranges from 80 to 90 per cent. Along the Atlantic coast, in most of the Cotton Belt, in the central and northern Rocky Mountain region and west to the Pacific, 60 to 80 per cent of the farmers report cows milked. Only in California and Florida, where there are many fruit and vegetable farms, does the proportion fall below 50 per cent. Dairying is not only the greatest but also the most widespread agricultural industry in the United States

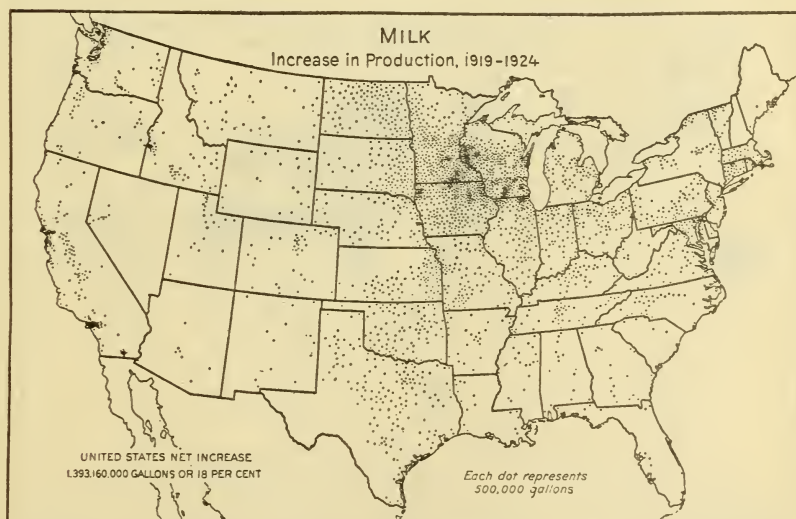


FIGURE 188.—The increase of milk production in the United States between 1919 and 1924 was almost universal, but the increase in the area lying between Lake Michigan and the semiarid plains was much greater than elsewhere. For these six States the production of milk, according to the census, was 32 per cent greater in 1924 than in 1919, but the production of factory butter was 71 per cent greater, according to reports made to the United States Department of Agriculture



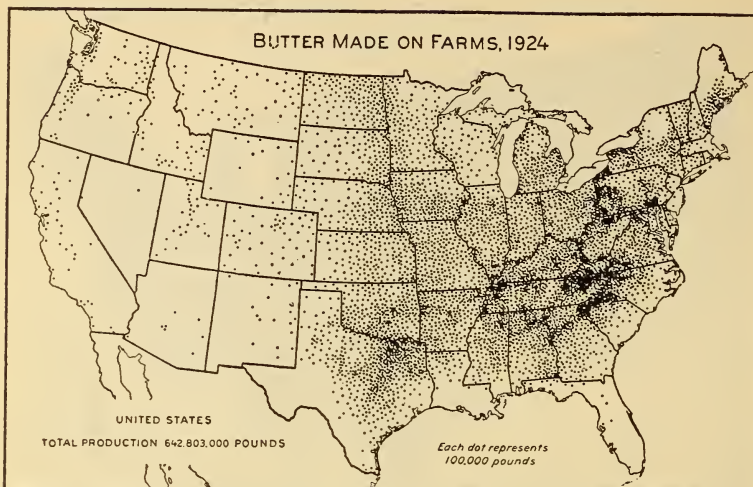


FIGURE 189.—Butter is made on farms, mostly for local consumption, principally in those sections where dairying is less commercialized and where the production of milk is small. (Fig. 186.) The sections of greatest production are the Allegheny and Cumberland Plateaus, the valleys of eastern Tennessee, the piedmont extending from Virginia to northern Georgia, northeastern Texas, and the black prairie. In New York and New England the farm butter is made mostly during early summer to utilize the surplus milk not needed by the cities. Little farm butter is now made in Wisconsin and Minnesota. The production of farm butter has been declining since 1899 and is now only about half as great as then

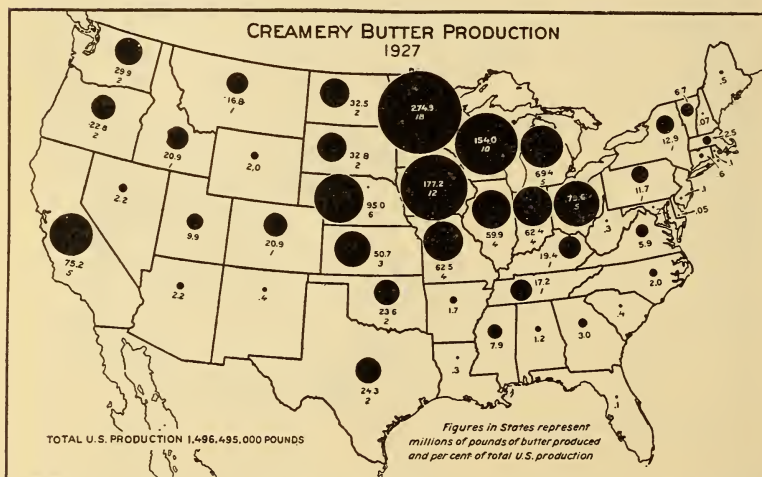


FIGURE 190.—Two-fifths of the factory butter produced in the United States in 1927 was made in Minnesota, Iowa, and Wisconsin, and three-fourths in the triangle of States the points of which are formed by Ohio, Kansas, and North Dakota. The Pacific Coast States produced nearly 9 per cent of the national total. Very little factory butter is made in the Cotton Belt, the supply for the cities especially being imported from the North; and relatively little butter is made in the North-eastern States, where most of the milk is sold for city consumption



FIGURE 191.—Since Wisconsin produces over 70 per cent of the Nation's cheese, it may be more interesting to note where in Wisconsin, and other States, the cheese is produced than to compare the production of the different States. In southwestern Wisconsin most of the foreign cheese of the United States is made, principally Swiss and Limburger. In eastern and north-central Wisconsin, also in Grant and Richland Counties in southwestern Wisconsin, practically the entire production is American cheese, a modified Cheddar type. New York produced about 16 per cent of the Nation's cheese in 1919, but in 1927 only 8 per cent, nearly all American cheese. The two centers of production are the St. Lawrence Valley and southward to the Mohawk Valley and the southwestern area, located mostly in the hills

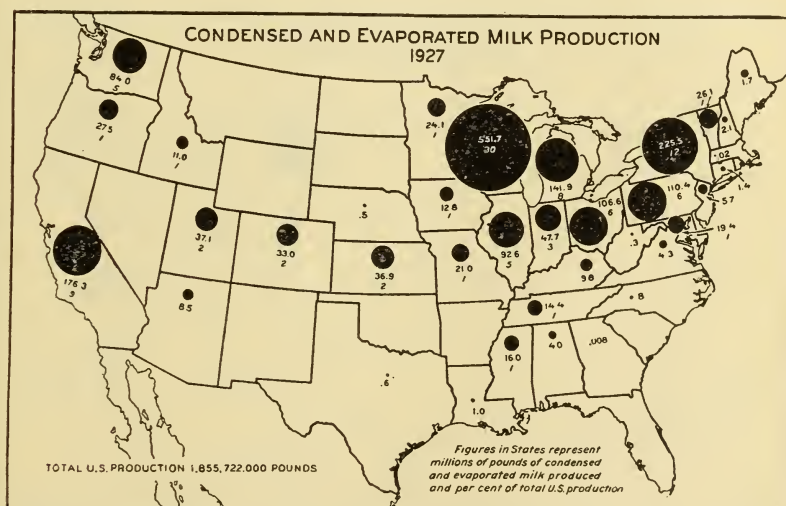


FIGURE 192.—Wisconsin produced 30 per cent of the Nation's production of condensed and evaporated milk in 1927, New York 12 per cent, and California 9 per cent. The production of condensed and evaporated milk has persisted in the northeastern States to a much greater extent than has butter production, and production in Minnesota and Iowa is as yet relatively unimportant. On the other hand, the Pacific Coast States are more important than in the production of butter. Note an appreciable production in Mississippi, despite the warmer climate

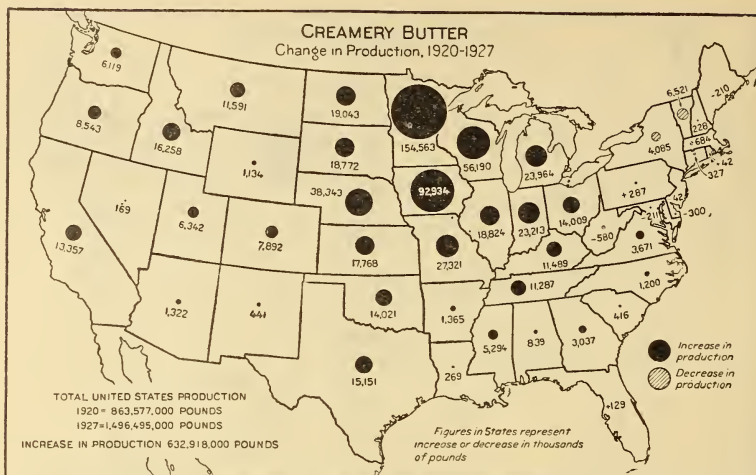


FIGURE 193.—The production of factory butter increased 73 per cent between 1920 and 1927, whereas the Nation's population increased only about 11 per cent. Farm production decreased. Of the increase of nearly 633,000,000 pounds of creamery butter, nearly half was supplied by Minnesota, Iowa, and Wisconsin. Every State contributed more or less to the increase, except the New England States, New York, New Jersey, Delaware, Maryland, Pennsylvania, and West Virginia. In this northeastern region the growth of the cities and the increasing consumption of whole milk decreased the surplus available for butter production in the flush season. Note that on this map and the three that follow the black circle represents increase and the shaded circle decrease

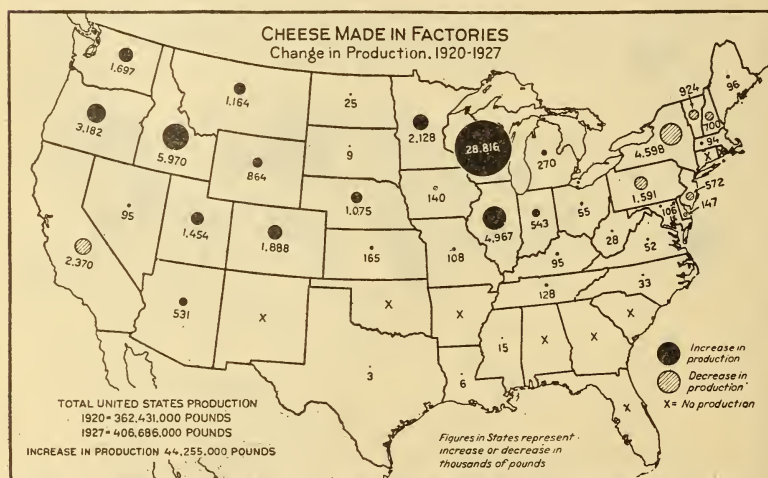


FIGURE 194.—The increase in factory cheese production (practically no cheese is now made on farms in the United States), was only 12 per cent between 1920 and 1927, an increase only about as great as that in the Nation's population. Two-thirds of this increase was in Wisconsin. Other States in which a considerable increase occurred were Illinois, Idaho, and Oregon. On the other hand, cheese production decreased in the Northeastern States, largely for the same reasons that butter production decreased; but a decrease in cheese production also took place in California and a much smaller decrease in Iowa



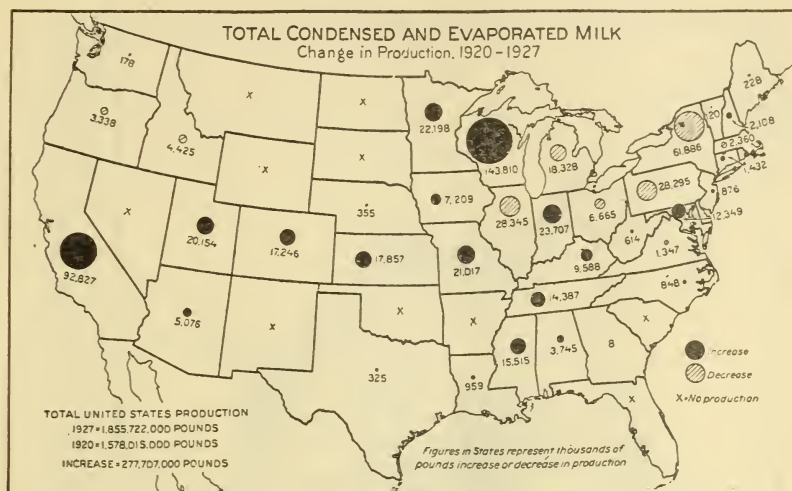


FIGURE 195.—The increase in production of condensed and evaporated milk in the United States between 1920 and 1927 was nearly 18 per cent; but as production of evaporated milk increased, whereas that of condensed milk decreased, the increase in food value was considerably greater than this percentage. Most of the increase of evaporated milk took place in Wisconsin and California; most of the decrease of condensed milk occurred in New York, Pennsylvania, Ohio, Michigan, and Illinois. (Fig. 196.) As with butter and cheese, therefore, the tendency during the period was for production to move out of the Northeastern States and to increase west of Lake Michigan and to a small extent in the South.

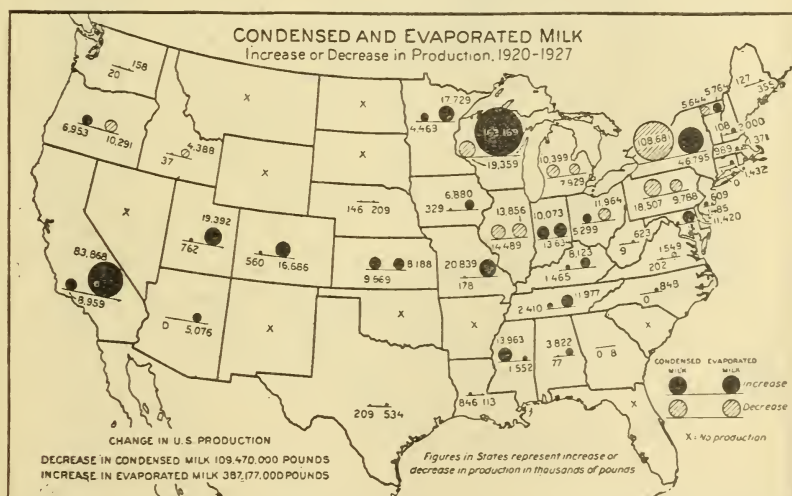


FIGURE 196.—This map shows the change in production between 1920 and 1927 separately for condensed milk and evaporated milk. The circles to the right in a State represent evaporated milk, and those to the left represent condensed milk. Solid black circles represent increase and shaded circles decrease. The production of evaporated milk has increased almost everywhere, except in Pennsylvania, Ohio, Michigan, Illinois, Idaho, and Oregon, whereas the production of condensed milk has decreased or remained almost stationary, except in Ohio, Indiana, Mississippi, Kansas, California, and Oregon.

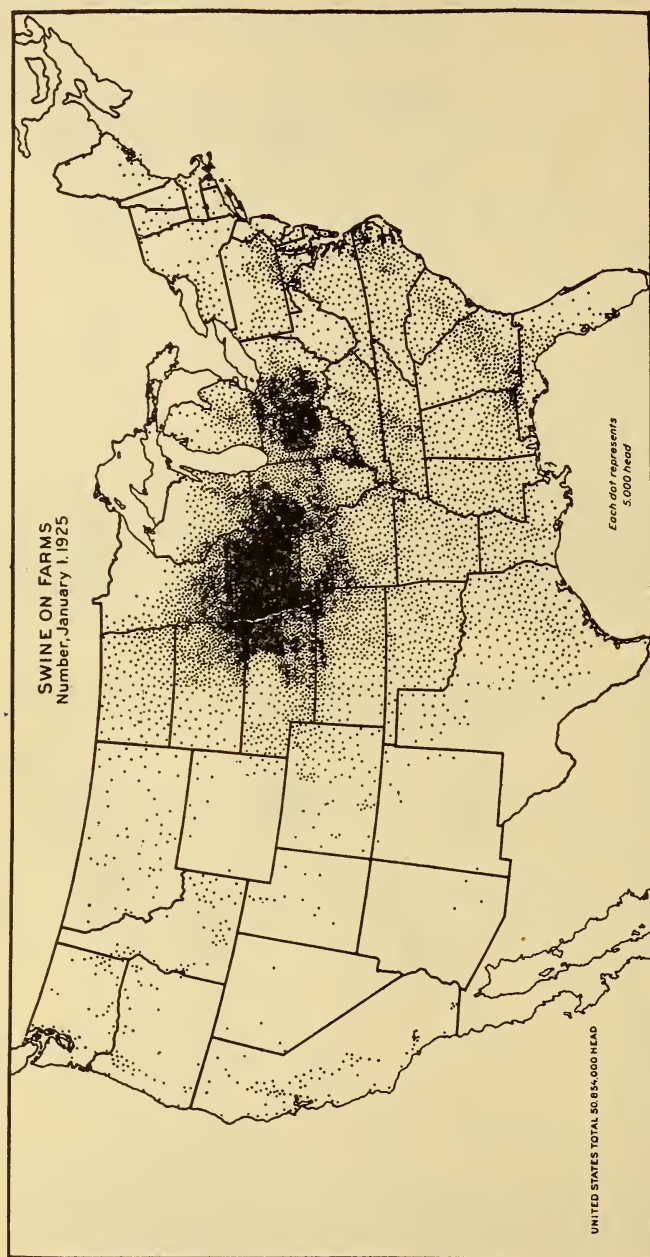


FIGURE 197.—Nearly 60 per cent of the hogs and pigs in the United States are in the Corn Belt, 14 per cent are in the Cotton Belt, and 11 per cent in the corn and winter-wheat belt. In 1919 there were, on the average, 108 swine per square mile in the Corn Belt, 21 in the cotton and winter-wheat belt, 12 in the hay and dairy region, and about 5 per square mile in the remainder of the United States. Just as the cool hay and dairy region finds the best outlet for its crops in feeding dairy cows, so the warm, fertile Corn Belt finds the growing of corn and feeding of beef cattle and hogs its most profitable system of farming.

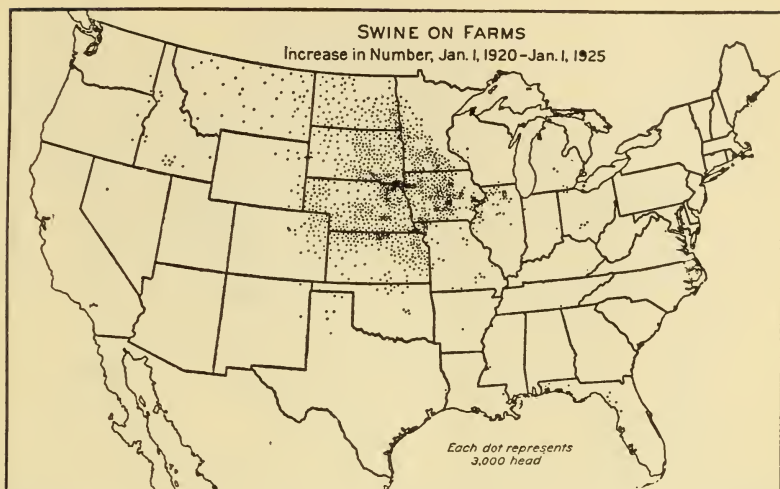


FIGURE 198.—The increase in hogs between 1920 and 1925 was notable in the western Corn Belt and in the spring-wheat region to the north, where the price of corn is the lowest in the United States. In these States there was a rapid shift from wheat toward corn and oats, while the number of horses decreased, and the acreage of harvested crops increased. (Fig. 15.) Comparison of this map with Figure 52 shows that the increase in hogs was not quite so widespread as of corn

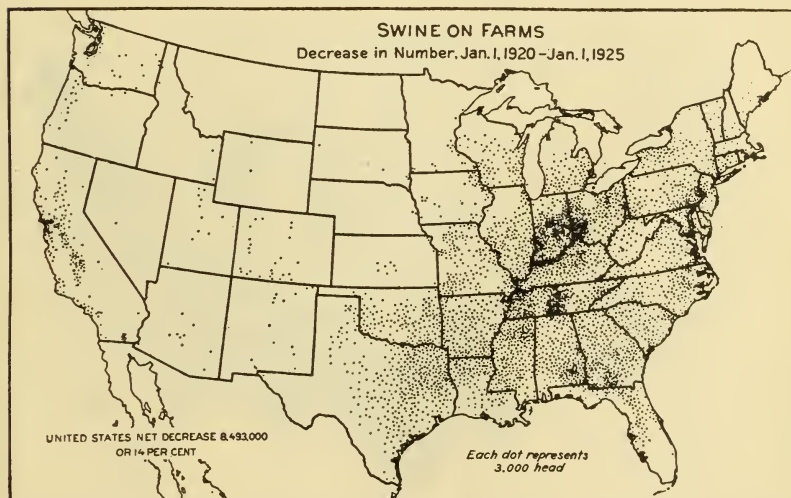


FIGURE 199.—The decrease in hogs between 1920 and 1925 was almost confined to the originally forested part of the United States, like that of corn, but extended a little farther to the north and west; a decrease occurred also in California. These are feed deficit areas except the eastern Corn Belt. Despite the 14 per cent decrease in the Nation's hogs between January 1, 1920, and January 1, 1925, about 22 per cent more pork and lard was produced in 1924 than in 1919, and 10 per cent more in 1925 than in 1920



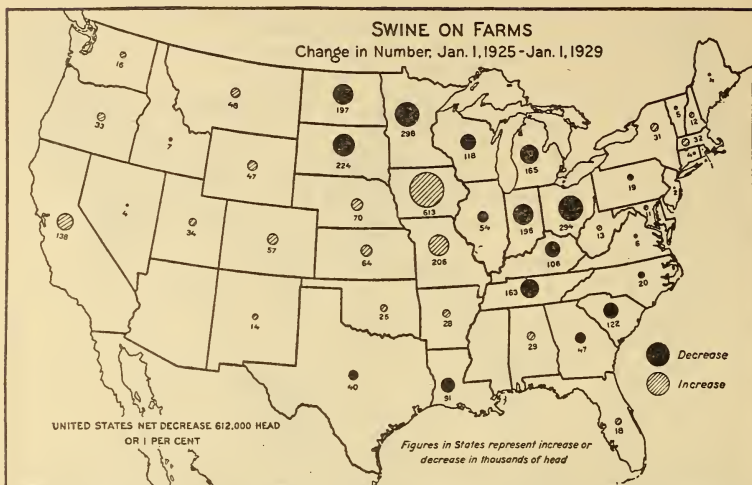


FIGURE 200.—Between 1925 and 1929 the number of swine continued to increase in the western Corn Belt, but declined in the spring-wheat region. A continued decrease occurred in the eastern Corn Belt, the Lakes States, in the Carolinas and Georgia, and in Louisiana and Texas. The States from Alabama to Oklahoma show a partial recovery from the decline of the preceding five years, as do New York and New England, and in 9 of the 11 far Western States an increase is indicated

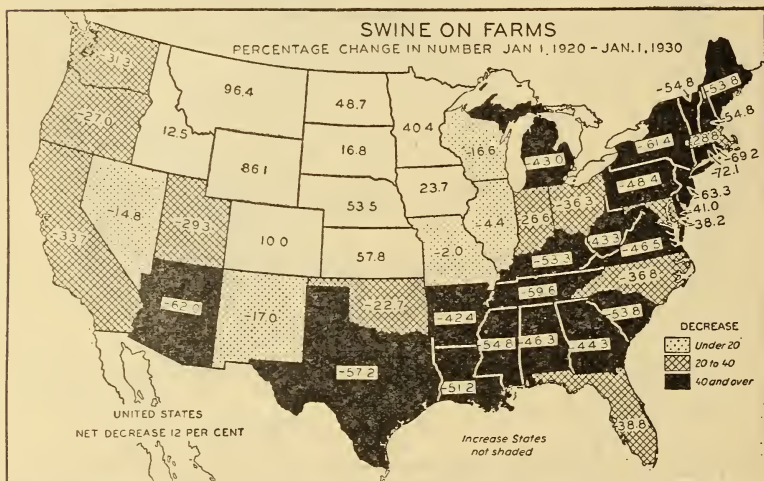


FIGURE 201.—The percentage change in number of hogs on farms during the entire period 1920 to 1930 brings out profound geographic shifts in the industry. In the Cotton Belt the decrease in most States exceeds 40 per cent. The decrease is about as great in Virginia, Maryland, and Pennsylvania, and is even greater in New Jersey and New York. On the other hand, from Missouri to Colorado and northward a notable increase has occurred, exceeding 40 per cent in Kansas and Nebraska, and mounting toward 100 per cent in Wyoming and Montana

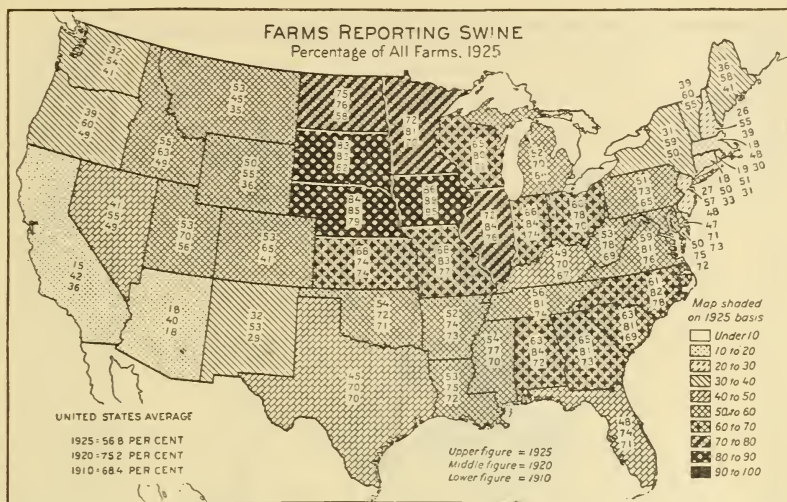


FIGURE 202.—Between 80 per cent and 90 per cent of the farms in the western Corn Belt raise hogs, but in the eastern Corn Belt only about 70 per cent. The proportion is higher in Minnesota and North Dakota than in Ohio, Indiana, Missouri, and Kansas. In the States from North Carolina to Alabama over 60 per cent of the farms have hogs. In the remainder of the United States, except the North Atlantic and Pacific Coast States, Arizona, and New Mexico, about half the farmers keep hogs. In all the States, except Montana and South Dakota, the proportion declined between 1920 and 1925; in the North Atlantic, the Pacific, and the Southwestern States this decline was notable.

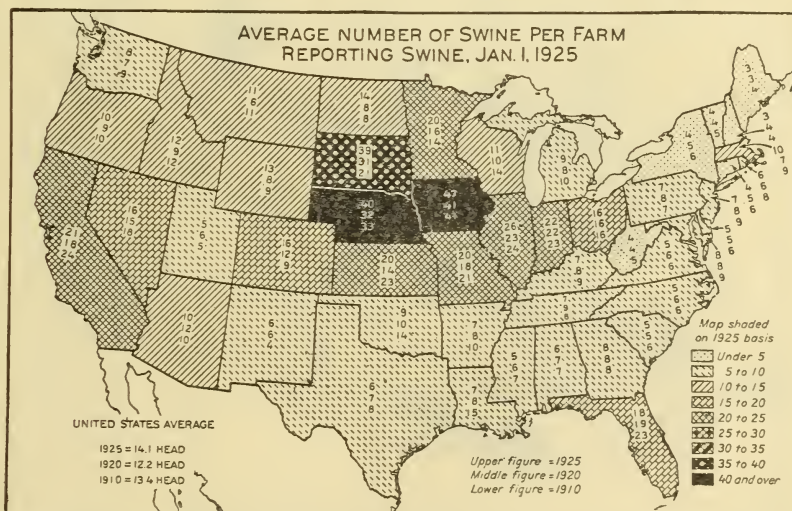


FIGURE 203.—Iowa and Nebraska averaged over 40 swine per farm reporting swine on January 1, 1925, and South Dakota had almost as many. In the other Corn Belt States, Minnesota, and California there were only about half this number. In the Southern States, except Florida, there were 5 to 8 hogs per farm; in New York and most of New England only 3 or 4. The number of swine per farm increased between 1920 and 1925 in the prairie States and most Western States, but decreased in most of the South and East. From Iowa west and northwest to the Rocky Mountains there was clearly a tendency toward increasing specialization in hog production.

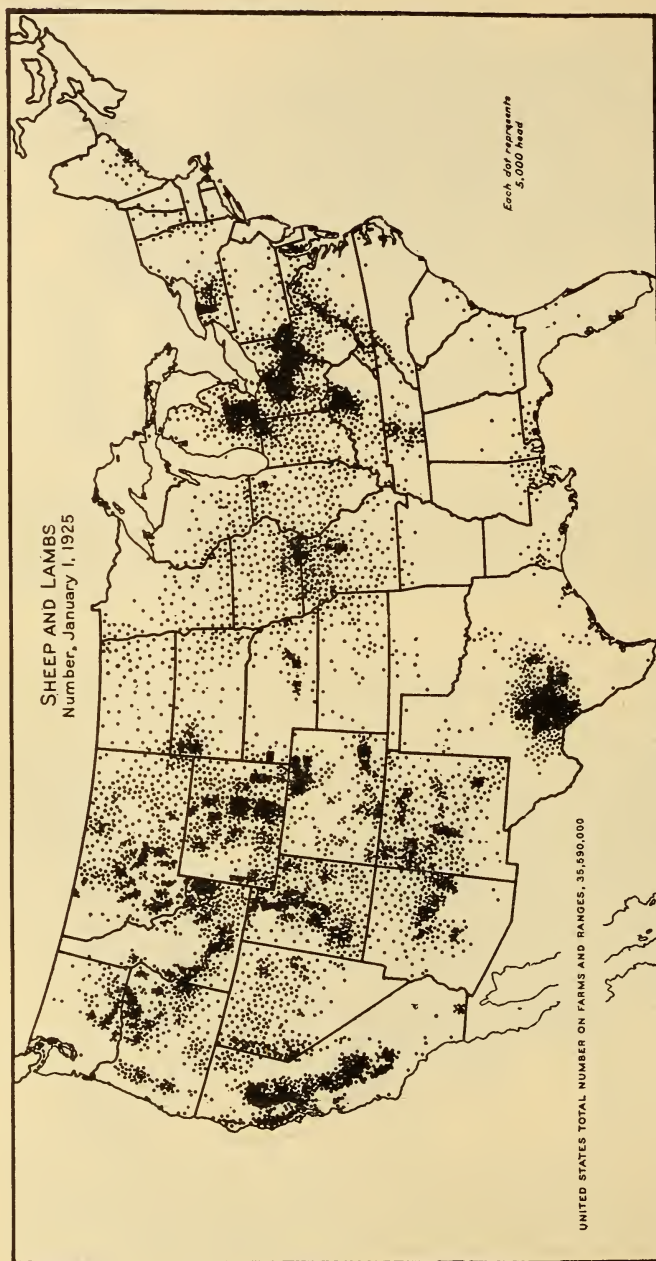


FIGURE 204.—Two-thirds of the sheep and lambs are in the western regions, largely because sheep can graze on more arid lands than any other kind of domesticated animal and are less subject to disease in arid than in humid climates. Some of the dense spots in the West are owing in part to the date of enumeration, January 1, when many sheep were being fed in the irrigated districts, and in part to the enumeration of sheep in that county in which the owner resides, even though the sheep be roaming over distant deserts. The following summer the same sheep may graze on the alpine meadows of the national forests. The dense centers in the East represent sheep on farms within the counties indicated. The principal centers are in eastern and central Ohio, southern Michigan, and the bluegrass district of Kentucky.



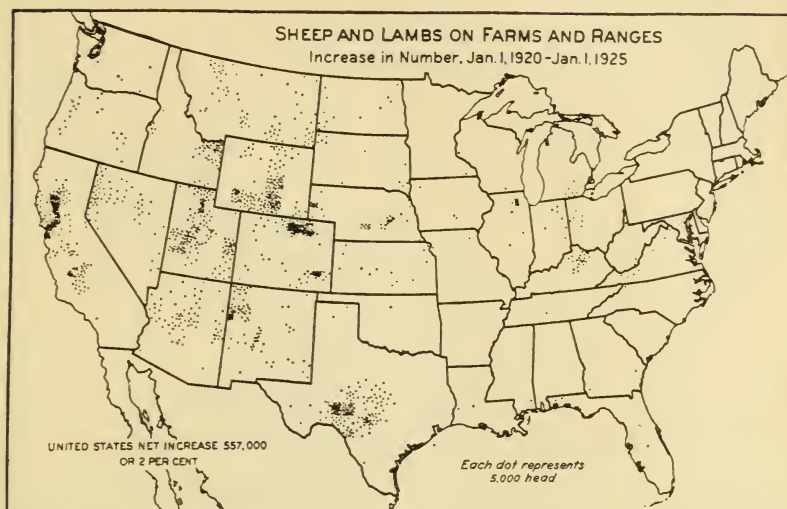


FIGURE 205.—The increase in sheep and lambs between 1920 and 1925 was widespread in the West, but the great increase in the South Platte Valley of Colorado and the Sacramento Valley of California is owing, doubtless, to more sheep on feed in these valleys in 1925 than in 1920 just at the time the census was taken. The increase in the Edwards Plateau of Texas, in much of Wyoming, Utah, and Nevada, on the other hand, represents a gain in the breeding stock.

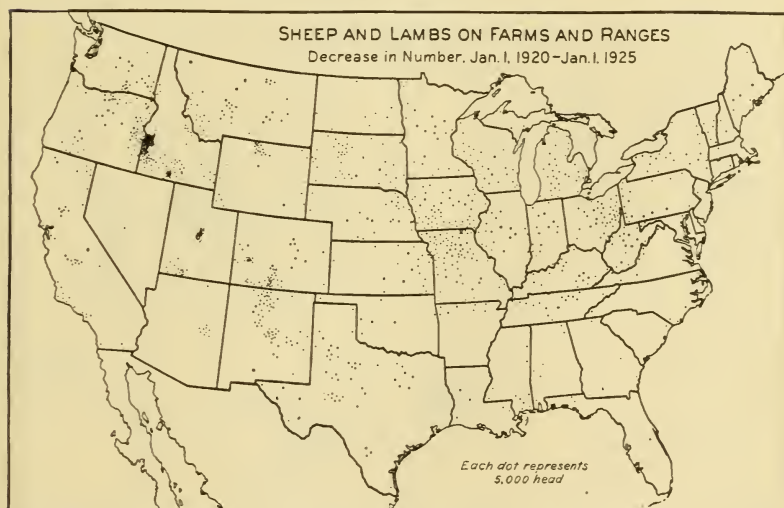


FIGURE 206.—The decrease in sheep and lambs between 1920 and 1925 was widespread in the Eastern States and was apparently notable in parts of the West. However, the decrease indicated in southern Idaho is more nominal than real and may be owing to fewer sheep on feed January 1, 1925, than in 1920. This is also true of the dense district in central Utah. In the San Luis Valley of Colorado and adjacent counties in New Mexico the decrease may have been real but probably was not permanent.



FIGURE 207.—Over half of the goats in the United States are in Texas—nearly all on the Edwards Plateau. Cattle, sheep, and goats (figs. 172 and 204) are grazed on the same land in this district, the cattle pasturing on the grass, the goats browsing the oak scrub and other brush, retarding its advance upon the grassland, the sheep eating weeds as well as the grass and brush. In the Southern States and in western Oregon goats are used in large numbers in clearing up cut-over land. In Texas and Oregon the goats are mostly Angoras; in Arizona and New Mexico Angoras predominate, but other breeds are common; in the South practically none of the goats are raised for their fleece

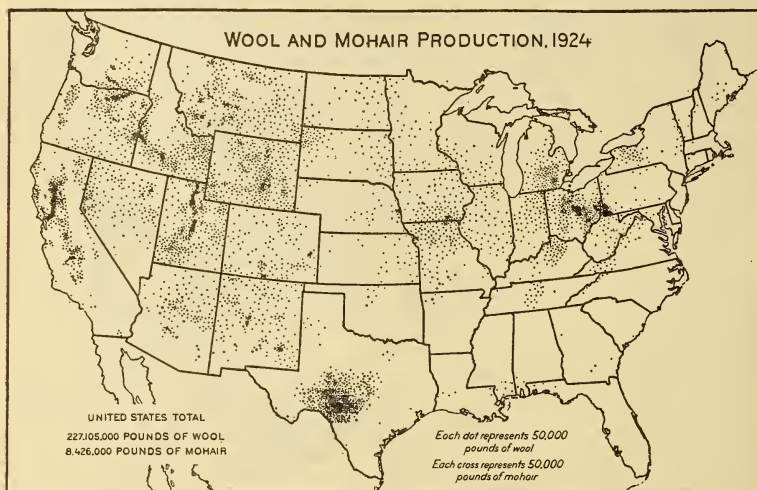


FIGURE 208.—The farm value of the wool produced in the United States in 1924 was about \$89,000,000 and of the mohair about \$4,500,000. Texas led the States in value of wool and mohair produced, but as the value of the mohair amounted to \$3,600,000 the value of the wool produced in Texas was only a little more than in Wyoming, Utah, or California. The average value of the wool produced in 1924 per mature sheep January 1, 1925, was \$4.14 in Ohio, \$4.11 in Montana, \$3.96 in Oregon, and \$3.62 in Texas. The production of wool is rather concentrated in several western valleys. The Texas area is almost confined to the Edwards Plateau

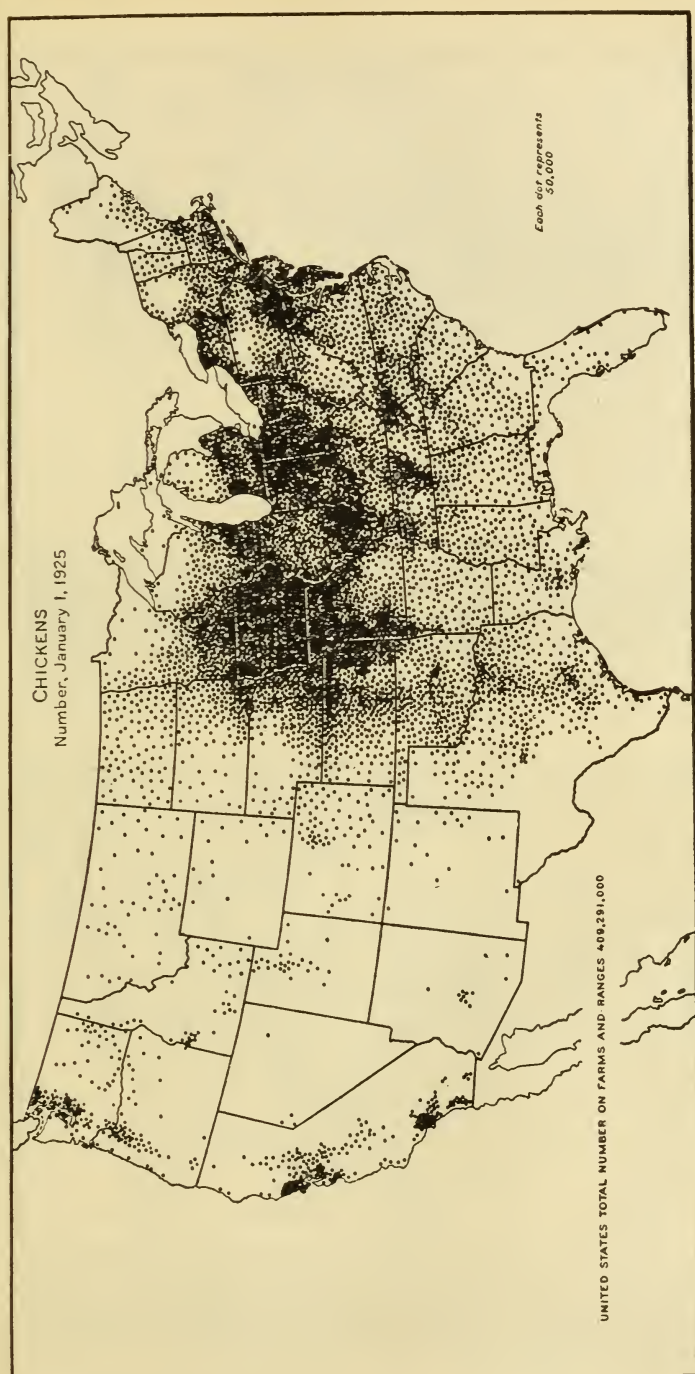


FIGURE 209.—Nearly half of the chickens in the United States are in the Corn Belt and around its margin, where feed is cheap. But the two most notable districts of production are in southeastern Pennsylvania, near Philadelphia, and in Sonoma County, Calif., especially the district around Petaluma. Six counties in southeastern Pennsylvania had over 5,000,000 chickens on January 1, 1925, or 1,150 to the square mile, while in Sonoma County there were over 3,000,000, with a value of eggs and chickens produced amounting to over \$11,000,000 in 1924. Los Angeles County, Calif., had 1,800,000 chickens. The California cities are supplied largely from these two counties; the eastern cities draw their supplies from a much wider territory.



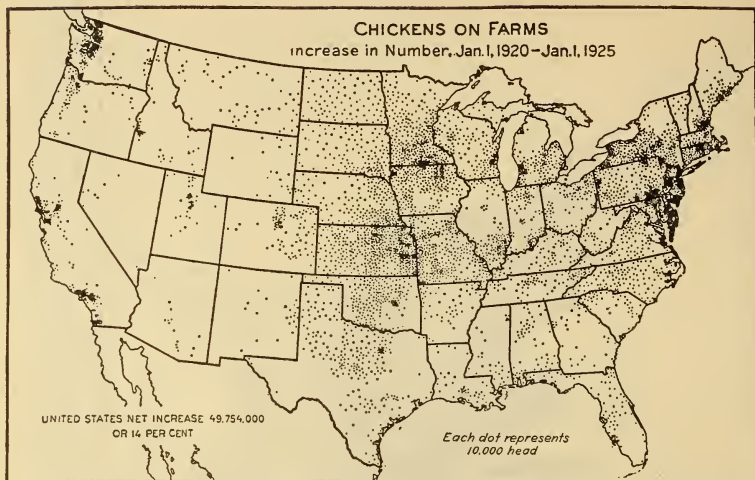


FIGURE 210.—The increase in number of chickens on farms between 1920 and 1925 was almost universal, except in the eastern Corn Belt and parts of the Cotton Belt. The greatest increases occurred in the urban belts that border the Atlantic and the Pacific coasts and around the Atlantic and the Pacific coasts and around the southwestern and northwestern margins of the Corn Belt. The increases in the Atlantic and Pacific belts are owing partly to proximity to the cities, where the price of fresh eggs is high; but the increases in the Central West are owing largely to cheap feed

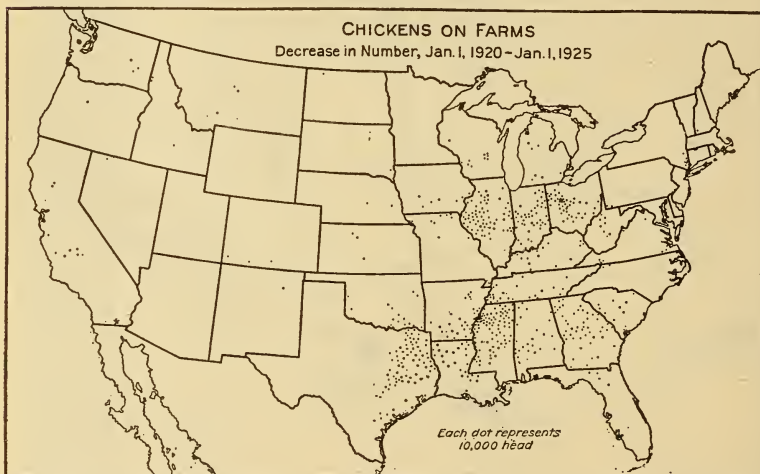


FIGURE 211.—A slight decrease in number of chickens on farms between 1920 and 1925 is indicated in parts of the eastern Corn Belt and in much of the Cotton Belt. But both the degree and extent of these decreases is almost negligible compared with the increases that occurred in most of the United States. (Fig. 210.) Dairy cows and chickens, both more efficient than beef cattle and sheep in transforming feed into human food, stand out as the two classes of livestock that increased notably during the post-war period

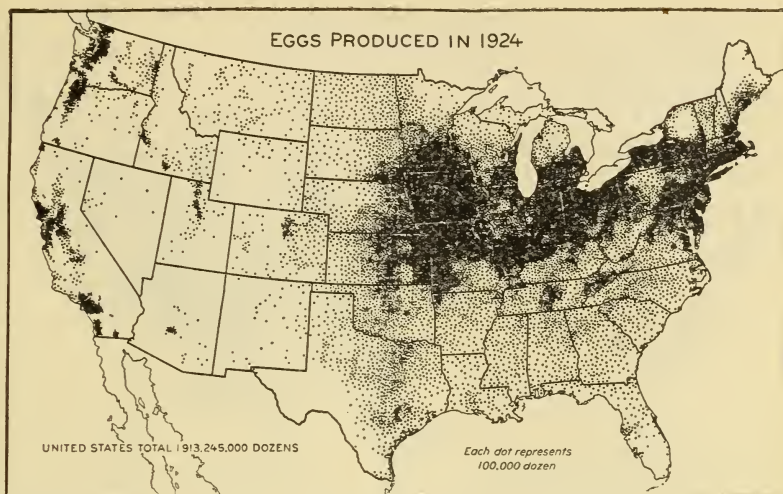


FIGURE 212.—The great center of egg production is the Corn Belt, where feed is cheap. The exception is in central Illinois, the heart of the Corn Belt, where, owing to lower freight rates to Chicago, most of the corn is sold for use in glucose factories or for shipment to the South or abroad. For the same reason relatively few hogs are raised in central Illinois. (Fig. 197.) For the heavy production of poultry, unlike hogs, extends northward into Wisconsin and southward into southern Illinois, indeed, the poultry belt extends over the edge of the Corn Belt in nearly all directions. Moreover, unlike hogs, large numbers of poultry and eggs are produced in New York, New Jersey, and Pennsylvania, in Tennessee and Kansas, in California and the north Pacific coast

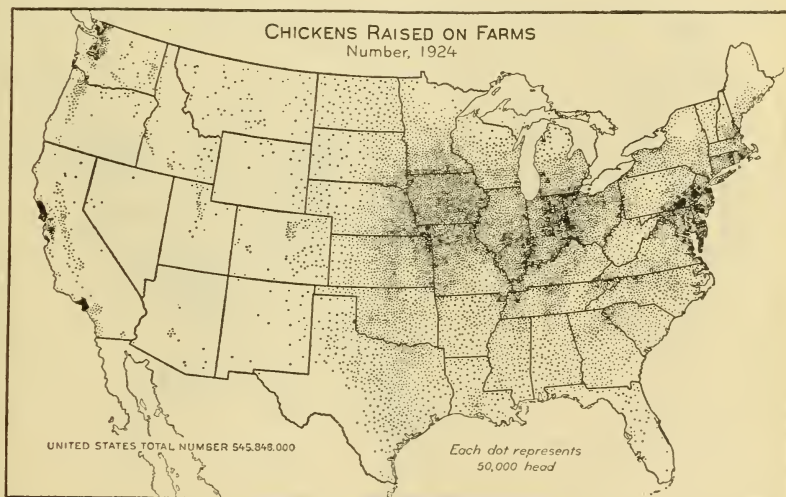


FIGURE 213.—The production of chickens is not concentrated in the Corn Belt and in New York and Pennsylvania and the valleys of the Pacific coast to nearly the same degree as the production of eggs. For each chicken on farms, January 1, 1925, there were 1.51 chickens raised in the Cotton Belt in 1924 and 40 eggs produced, but in the Corn Belt the respective figures are 1.3 chickens raised and 56 eggs produced, and in California 1.13 chickens raised and 92 eggs produced. Despite this difference, it is clear that the production of chickens is about as great in the Corn Belt and around its margins as in all the remainder of the United States. As with eggs, dense centers will be noted in California and in southern Pennsylvania.

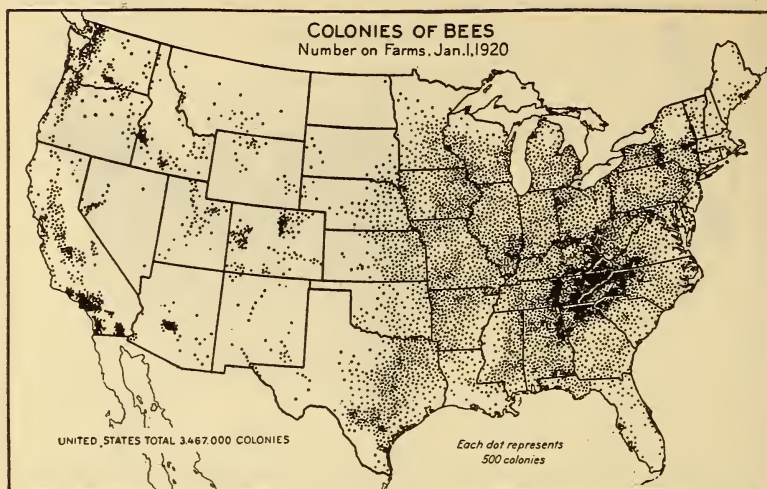


FIGURE 214.—Two districts of dense distribution of bees stand out on the map, the southern Appalachians and southern California. The southern Appalachian district, extending from eastern Kentucky to northern Georgia and Alabama, had about 600,000 colonies in 1919 and produced about 7,000,000 pounds of honey, whereas California, with only 181,000 colonies, produced 5,500,000 pounds, or almost three times as much per colony. Texas also produced over 5,000,000 pounds of honey in 1919. The irrigated districts in the West, where fruit and alfalfa furnish many flowers, show distinctly on the map. Districts having large numbers of bees are also found in New York State, along the Ohio River, and in southern Illinois. Census statistics for 1925 are unavailable.

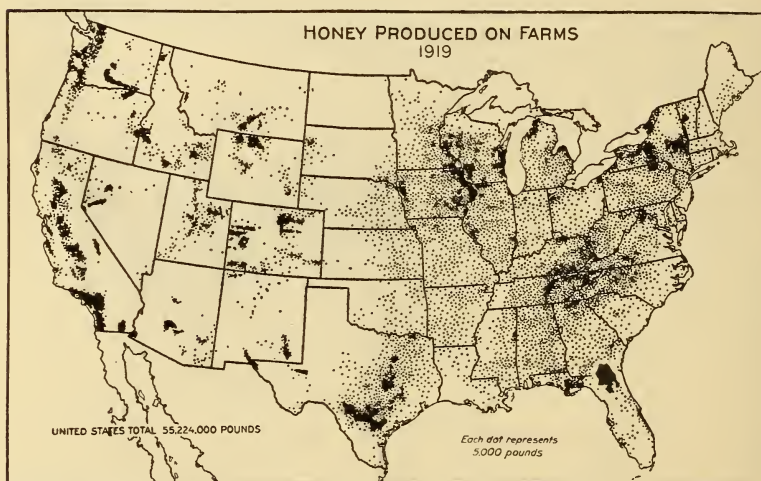


FIGURE 215.—The irrigated districts of the Western States stand out more distinctly on this map of honey production than on the map of any other commodity, except alfalfa. Although the bees are kept by the farmers who live in the irrigated districts principally, they gather much of their honey from the desert plants. A comparison of this map with that of colonies of bees (fig. 214) reveals the high production per colony not only in the West (34 pounds) but also in southern Texas (22 pounds), Iowa (21 pounds), Wisconsin (25 pounds), and New York (25 pounds). In North Carolina the production per colony was only 8 pounds and in Ohio only 8 pounds, probably owing to an adverse season.



## FARM EXPENDITURES

The expenditure of farmers for feed, fertilizer, labor (money wages only), and for lumber totaled over \$2,000,000,000 in 1924, and taxes paid probably brought the figure up to nearly \$3,000,000,000. In addition there was an expenditure of several hundred million dollars for interest and commissions on mortgage debt. It appears, therefore, that these expenditures amount to fully a third of the farmers' gross income, and when expenditures for machinery and tools, for livestock bought, for seed, spraying materials, and many other items are added, for which no census figures are available, it seems probable that the farmers' cash expenditures totaled about half of the net farm value of his products.

The expenditures for labor are considered in a separate section of this publication (pp. 204 to 209), as are the amounts paid as taxes (pp. 183 to 188), and only expenditures for feed, lumber, and fertilizer are presented in the maps that follow. The expenditures for feed are heaviest in the Northeastern States, where dairying is the dominant industry and is partly dependent on mill feed, grain, and linseed cake from the West and cottonseed meal from the South. Much western grain is also used to feed poultry and work horses in this region. The heavy expenditure for feed in the California valleys and western Washington is for dairy cows and poultry principally. The expenditure for fertilizer is greatest in the South Atlantic States, extending northward on the coastal plain to New England. The fertilizer is used principally on the cotton and tobacco crops in the South, on tobacco and onions in the Connecticut Valley, and for the vegetable crops on the coastal plain from Norfolk, Va., to Boston. Outlying districts are the Aroostook potato district of Maine and the fruit and truck districts of Florida and California. The expenditure for labor is very heavy in these fruit-growing and trucking belts.

Thus it appears that farm expenditures are heaviest in the Northeastern States and California; in fact, many dairy and poultry farms in these areas approach manufacturing plants in character, transforming purchased feeds into finished products, with heavy expenditure for labor. In the Cotton Belt, on the other hand, the expenditure for labor is greatly reduced in the eastern portion by means of the cropper and tenant systems, and expenditure for fertilizer in the western part is as yet insignificant; nevertheless, the ratio of expenditures to receipts is as high as in any other region, and there are many plantations in which expenditures for feed, fertilizer, labor, and lumber are all large. In the Corn Belt farm expenditures are lighter than in the North Atlantic States or in California but heavier than in the South. The farms, especially in the prairie portion of the Corn Belt, are large, and expenditures for labor, feed, machinery, and lumber are large per farm. There is little expenditure for fertilizer, but as the use of mineral fertilizer is slowly moving westward from the leached lands along the Atlantic coast into the areas of inherently more fertile lands in the Mississippi Valley expenditures for fertilizer in the Corn Belt are likely to increase as the supply of phosphorus, calcium, and other elements of fertility in the soil is depleted.

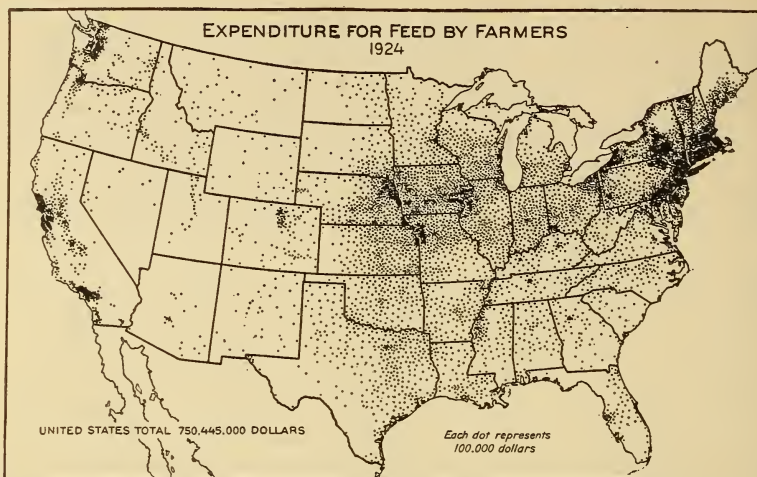


FIGURE 216.—The expenditure for feed is greatest in the hay and dairy region, especially the eastern portion, in southeastern Pennsylvania, in the Los Angeles and San Francisco districts in California, and in western Oregon and Washington. In these areas dairying dominates, and the production of grain is deficient. There is also heavy expenditure in the Corn Belt, where feed is freely bought and sold by the farmers, most of whom raise beef cattle and hogs. In north-central Illinois the expenditure for feed is much less because the corn is largely sold to the near-by Chicago market, and few cattle or hogs are raised

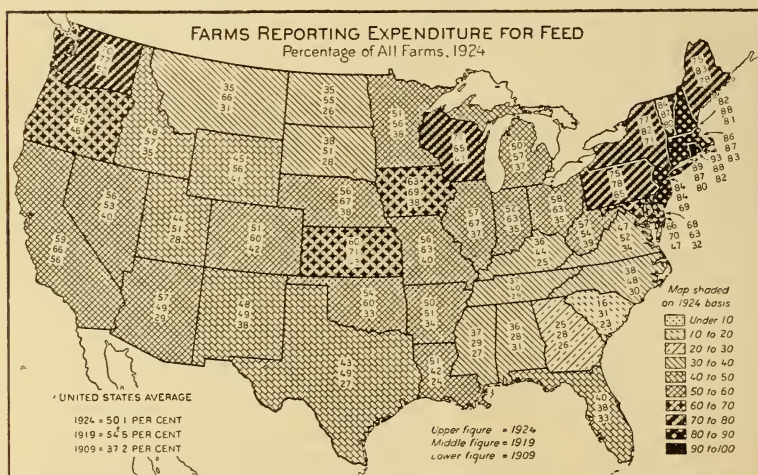


FIGURE 217.—In the North Atlantic States three-fourths or more of the farmers bought feed in 1924, and in Delaware, Maryland, Wisconsin, and Washington the proportion was nearly as large. In the other Northern and Western States, outside the spring-wheat region, the proportion ranged from 44 to 63 per cent. In Georgia it fell to 25 per cent and in South Carolina to 16 per cent. The percentage declined in most of the States between 1919 and 1924 (Florida, Alabama, Mississippi, Louisiana, Wisconsin, West Virginia, Connecticut, Arizona, and Nevada are exceptions). However, the percentage was higher in 1924 in almost every State than in 1909



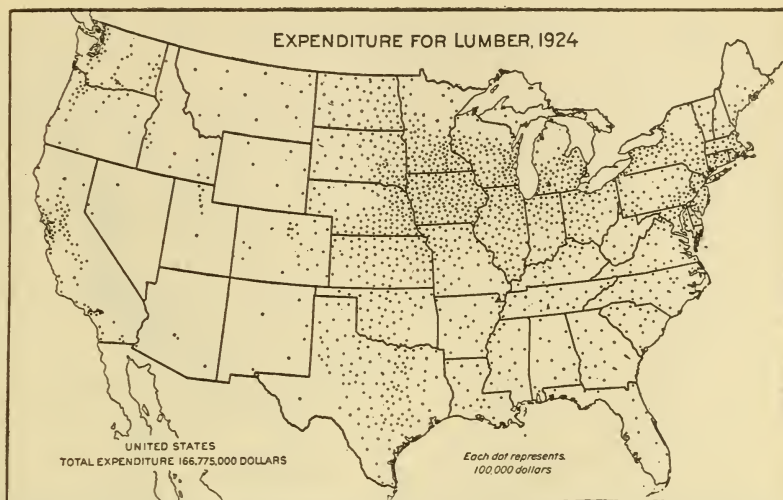


FIGURE 218.—Expenditure of farmers for lumber in 1925 was much less than for feed or labor but nearly three-fourths as much as for fertilizer. The geographic distribution of the expenditure for lumber resembles that for labor, being heaviest, in the Corn Belt, in the hay and dairy region to the north and east, and in California, western Oregon, and Washington. The lesser expenditure in the Southern States is owing not only to the milder climate that renders expensive houses, barns, and other buildings less necessary than in the North, but also to the smaller importance of livestock in southern agriculture and the lesser wealth available for the construction of buildings

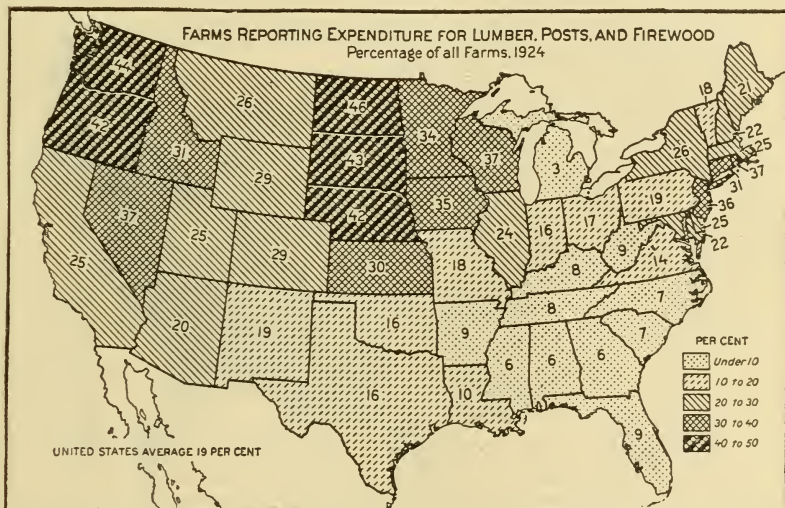


FIGURE 219.—The farmers of the United States are great users of wood. In addition to that which they grew, about one-fifth purchased wood during 1924. The largest proportion of farmers bought wood in those sections where there is practically no woodland in farms—in the Dakotas and Nebraska and in eastern Washington and Oregon. The proportion was surprisingly large in Minnesota and Wisconsin, New York, and New England. In the South, on the other hand, the proportions were low, partly because of the abundance of woodland (fig. 28) and partly because the negro croppers and tenants and the so-called "poor whites" are less likely to buy wood than are the farmers who operate the larger and better-equipped farms in the North and West



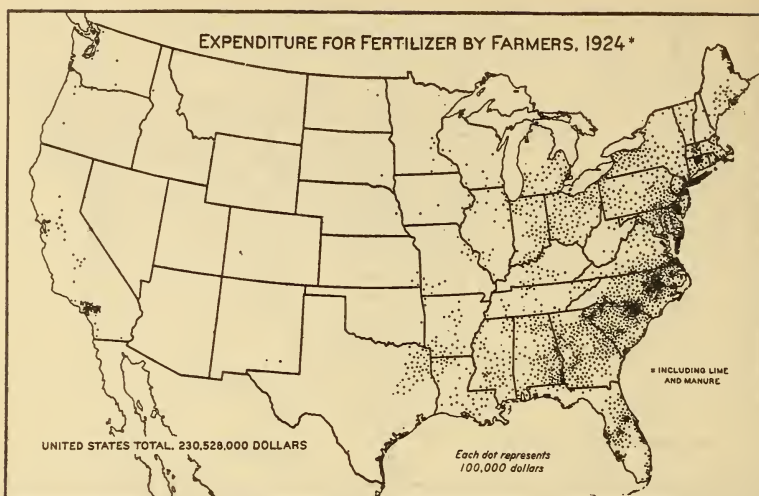


FIGURE 220.—Fertilizer is used at present principally on the more intensively cultivated crops, particularly cotton, tobacco, fruit, and truck, including potatoes, and almost wholly as yet in the Eastern and Southern States, where the rainfall is heavier and the soils more leached. About half of the expenditure in 1924 was in the coastal plain and piedmont portions of Georgia, the Carolinas, and Virginia. Minor territories are the trucking districts of New Jersey and Long Island, the tobacco-onion district of the Connecticut Valley, the Aroostook potato district in Maine, and the fruit-trucking district in southern California. Significant and prophetic is the considerable expenditure shown in Ohio and Indiana and even in Illinois, Iowa, and Minnesota

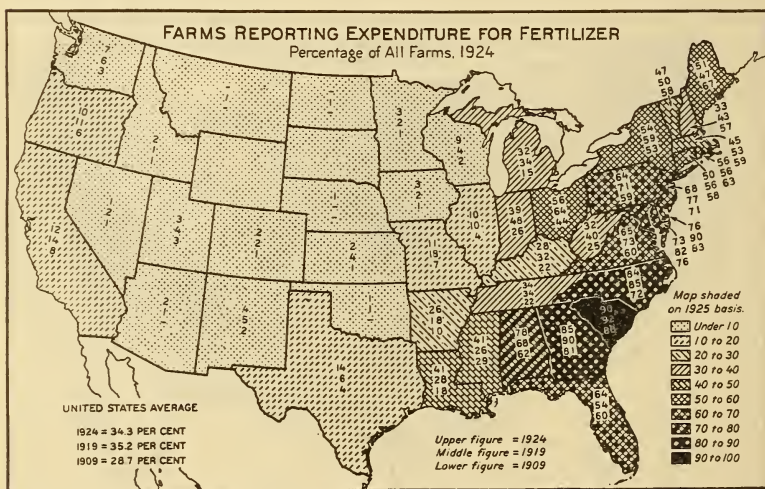


FIGURE 221.—Ninety per cent of the farmers in South Carolina bought fertilizer in 1924 and about 85 per cent in Georgia and North Carolina. In Delaware, Maryland, and Alabama about three-fourths of the farmers bought fertilizer; in Pennsylvania, New Jersey, Virginia, and Florida about two-thirds; in New England, New York, and Ohio about one-half; in Michigan, Indiana, West Virginia, Kentucky, Tennessee, Mississippi, and Louisiana one-third to two-fifths; in Wisconsin, Illinois, Missouri, and the Pacific Coast States about one-tenth. The use of commercial fertilizer is moving west, and although it is used mostly on intensively cultivated crops that have a high value per acre, its use on the general farm crops, even in the fertile Corn Belt, has proven profitable

## COOPERATIVE MARKETING AND PURCHASING

Since before the Civil War American farmers have been acting collectively as a means of improving their economic condition. Among the earlier efforts at united action were the making and marketing of cheese and butter by groups of neighbors. Such enterprises developed in New York, Ohio, and Wisconsin. Almost immediately following the Civil War came the first of the national farmers' organizations, the Patrons of Husbandry, commonly known as the Grange. Although it was established as a fraternal, educational, and social order, almost from the first it was concerned with economic matters. Many subordinate granges were formed for the purpose of buying cooperatively household and farm supplies and for marketing farm products. This was particularly true in the States of the northern Mississippi Valley and in Mississippi at the south. By 1875 more than 21,000 granges had been formed, largely because of the feeling among farmers that they should do something to equalize economic opportunities between themselves and industry. About 1875 the grange movement passed the peak of its activity, and there was a marked decline in the number of organizations.

About 1886, grain farmers, restless under the arbitrary attitude of railroad officials and the grain dealers, began the organization of cooperative elevators. This cooperative movement lasted for 15 years. During the decade of the nineties many associations for the cooperative making and marketing of cheese and butter were formed. About this time fruit growers began forming associations.

Early in the twentieth century the cooperative method of handling farm business became popular, and the number of functioning associations for buying and selling increased rapidly. From 1900 to 1920 was the heyday period for the local independent association. During these years the technique for the formation and operation of large-scale associations, operating over States or over producing areas, was developed. Two types of large-scale enterprise were evolved—the federation, which was a banding together of local associations with a central office, and the centralized association, composed of thousands of individual farmers who had the same product to market. From 1918 to 1925 many associations of both kinds were formed, but the centralized form of activity acquired a membership more than four times that of the federated organizations.

As a number of the large-scale associations went out of business about 1925, there was a decrease in the number of farmers buying or selling through cooperatives.

With the creation of the Federal Farm Board in 1929, and the announcement that it would work through cooperatives, a new impetus was given to the creation of business associations of farmers. The present program includes nation-wide selling agencies for the more important crops, these to serve regional organizations, which in turn are to serve local associations. Already national sales agencies have been formed for grain, cotton, wool, livestock, and beans, and the regional associations for bridging the gap between the national selling agency and the local associations are being rapidly formed.

There is every reason for believing that the present movement will result in a much larger number of farmers becoming members.

R. H. ELSWORTH.



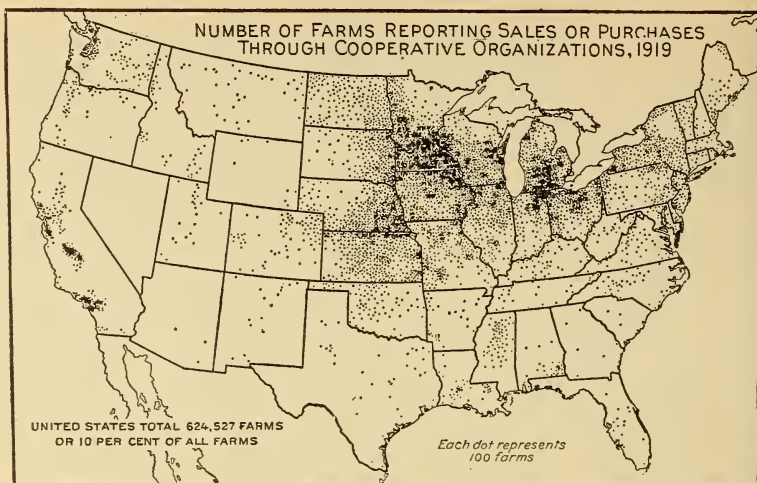


FIGURE 222.—In 1919 about 625,000 farms, according to the census, sold farm products or bought farm or home supplies, to a greater or less extent, through cooperative organizations. Half of these farms were in Minnesota, Iowa, Wisconsin, northern Illinois, Michigan, northern Indiana, Ohio, and New York; and the cooperative associations were mostly creameries, cheese factories, market-milk selling organizations, farmers' elevators, or livestock-shipping associations. Many farms in Kansas, Nebraska, and the Dakotas sold grain through their own marketing organizations, and thousands of Missouri farms marketed livestock cooperatively. In California the principal commodities sold were fruits and vegetables. These California organizations handled a large part of the fruit shipped from the State

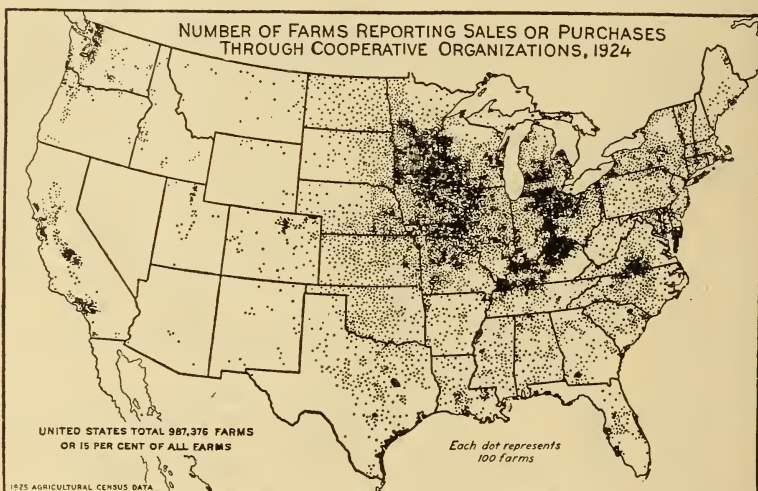


FIGURE 223.—Between 1919 and 1924 the number of farms using cooperative organizations increased 58 per cent. Tobacco-marketing associations, with an aggregate membership of nearly 300,000, developed in Kentucky, Virginia, and the Carolinas; the number of farms marketing grain and livestock cooperatively increased greatly in Iowa, Missouri, Illinois, Indiana, and Ohio. Cotton-marketing associations with large memberships were formed in 10 Southern States, and fruit and vegetable marketing associations arose in many localities in Texas, Arkansas, Mississippi, and Georgia. The California organizations continued to gain in strength, and the potato and vegetable marketing associations along the Atlantic coast extended their operations. But in Maine, New Jersey, Delaware, Kansas, Nebraska, South Dakota, North Dakota, Montana, and Idaho a smaller number of farms were marketing cooperatively in 1924 than in 1919



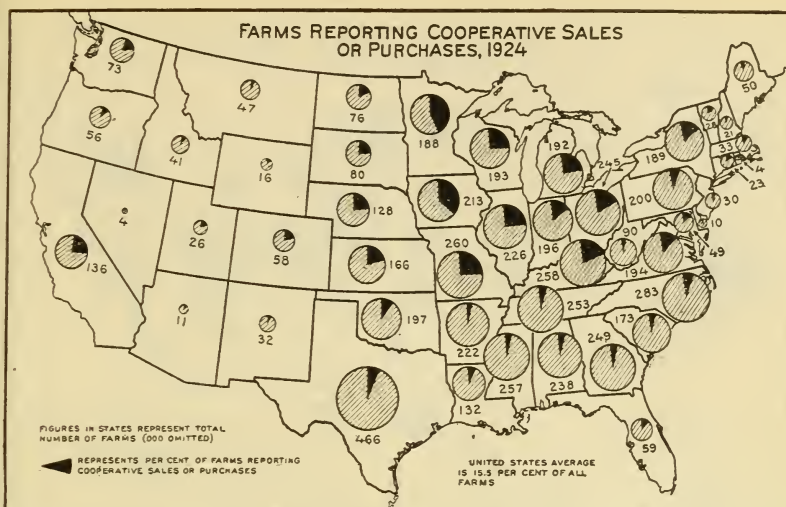


FIGURE 224.—The proportion of farmers reporting either sales or purchases, or both, through cooperative organizations increased from 9.7 per cent of all farms in 1919 to 15.5 per cent in 1924. In Minnesota 43.8 per cent of all farmers either sold farm products or bought farm supplies through their own associations in 1924. The percentage for Iowa was 37.1 and for Wisconsin 26.2. Twenty per cent or more of the farmers in Missouri, Illinois, Michigan, California, Nebraska, South Dakota, Kansas, Kentucky, and Colorado sold or bought through cooperatives in 1924. In all but one of the cotton States less than 10 per cent of the farmers bought or sold cooperatively, and in New England only 12 per cent

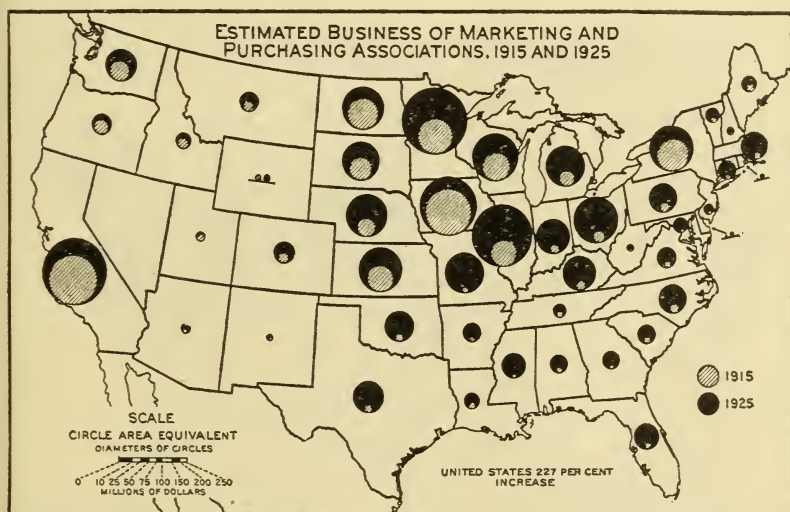


FIGURE 225.—Although the North Central States, New York, and California in 1925, as in 1915, were the most important with reference to development of cooperative marketing by farmers, measured by business transactions, it is clear that the percentage increase for the 10-year period has been much greater in the Southern and Eastern States. In many of these States the business transacted by cooperative associations increased 1,000 per cent or more between 1915 and 1925. In New York, Iowa, North Dakota, Wyoming, Utah, Idaho, Oregon, and California, the increase was less than 100 per cent. Only Nevada showed a decrease from 1915 to 1925. For the United States as a whole the estimated increase was 227 per cent. This is a remarkable record for a decade

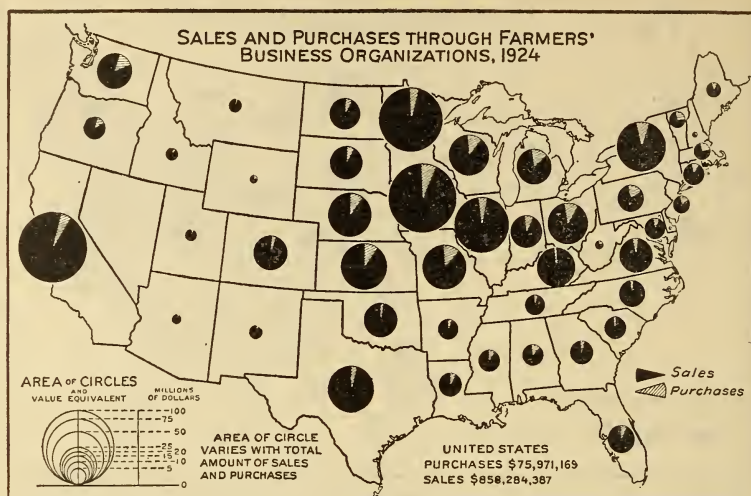


FIGURE 226.—Two things are shown in the map—that sales of farm products comprise 80 to 90 per cent or more of the business of cooperative associations, except in Vermont, New Hampshire, and Massachusetts, and that as late as 1924 most of the cooperative marketing of farm products was in the Northern States, Virginia, Kentucky, Oklahoma, Texas, Colorado, California, and Washington. In 1924 California, Iowa, and Minnesota almost tied for first place with reference to business transacted, with New York and Illinois ranking somewhat lower. Little cooperative selling or buying of commodities had developed by 1924 in the Rocky Mountain States, except Colorado

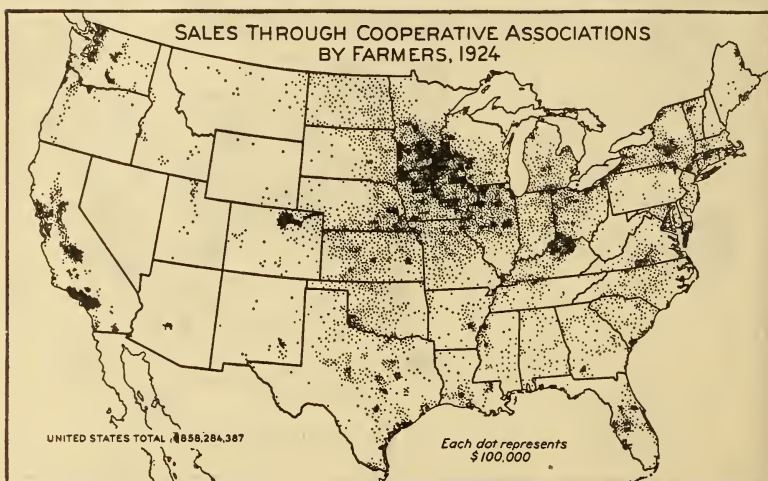


FIGURE 227.—The sales through cooperative associations were more concentrated in 1924 than the number of farmers reporting sales or purchases. The districts of outstanding importance are the valleys of California, Oregon, and Washington, the South Platte Valley in Colorado, southern Minnesota, practically all of Iowa, southeastern Nebraska, portions of Kansas and Missouri, northern Illinois, the bluegrass district of Kentucky, northern Ohio, southern Michigan, much of New York, Hartford County, Conn., Aroostock County, Me., Long Island, the eastern shore of Virginia, the various tobacco districts, and central Florida. Grains, milk, butter, cheese, livestock, fruits, and vegetables are the principal products sold cooperatively

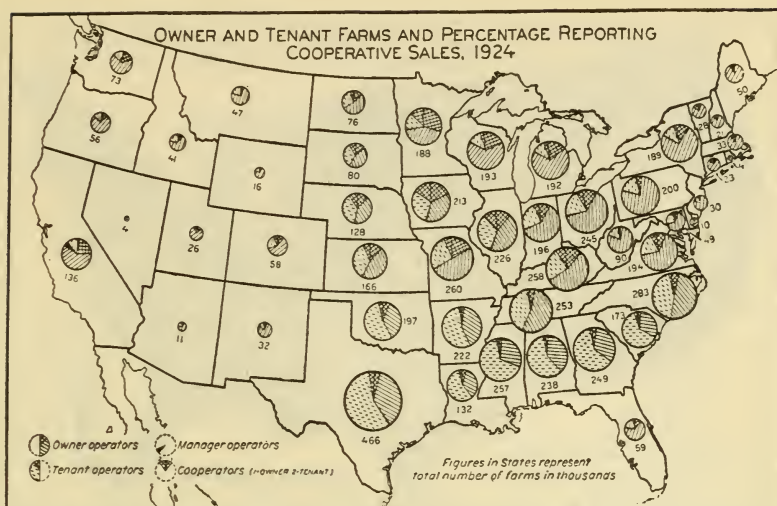


FIGURE 228.—More than two-fifths of the farmers in Minnesota and between one and two fifths in Iowa, Wisconsin, Michigan, Illinois, Missouri, Nebraska, and South Dakota—all located in the North Central States—and also in Kentucky and California, sold products through cooperative associations in 1924. In four of the North Central States—Illinois, Iowa, Nebraska, and South Dakota—more than 40 per cent of the farmers selling cooperatively were tenants. This was also true in South Carolina, Mississippi, Louisiana, Oklahoma, Texas, where the proportion of farmers who are tenants is high, and in Colorado. The States in which tenant farmers, selling cooperatively, were more than 8 per cent of all farmers were Iowa, Minnesota, Illinois, Nebraska, South Dakota, and Colorado

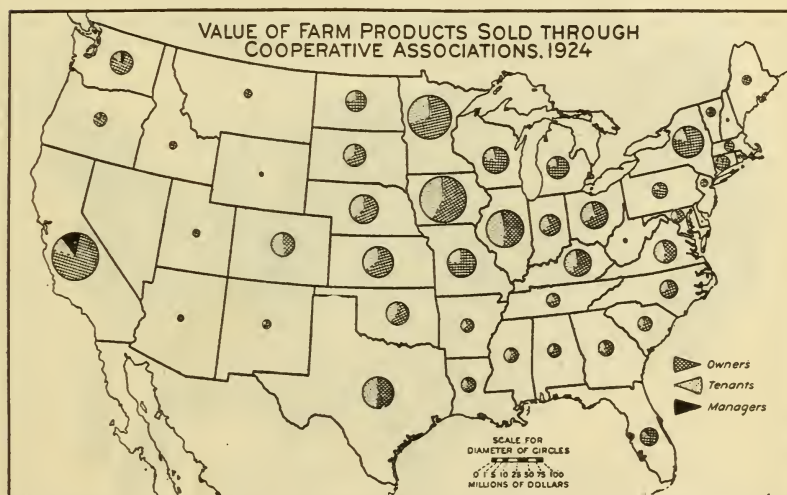


FIGURE 229.—In the Northern States east of the Great Plains tenants contributed, in general, their full proportion of cooperative sales in 1924, except in Missouri; and in Illinois, Indiana, Ohio, Maryland, and Virginia they contributed more than their proportion. This is true also in Colorado and New Mexico. But in the Southern States, where there are many negro and white croppers who have little to sell, tenants, including croppers, contributed much less than their proportion to cooperative sales of farm products. This is true also in the Great Plains States and in California. For the United States as a whole tenants constituted 38.6 per cent of all farmers and contributed 29.5 per cent to the cooperative sales of farm products



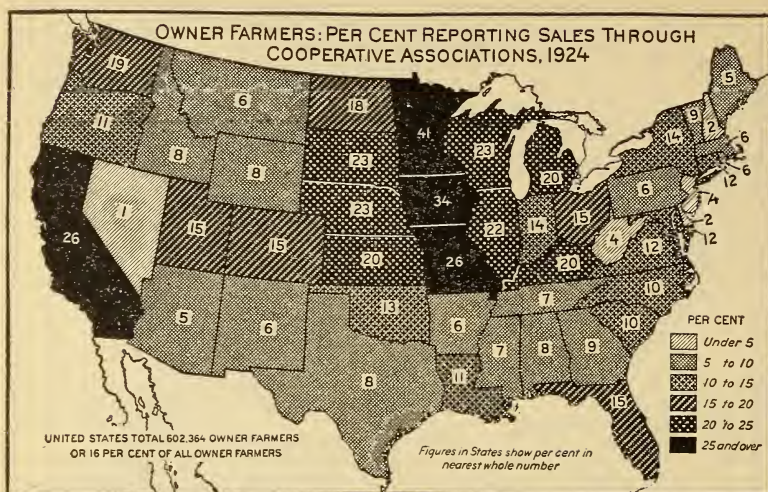


FIGURE 230.—In Minnesota and Iowa over one-third of the farmers who owned their farms sold through cooperative associations, and in Wisconsin, Michigan, Illinois, Kentucky, Missouri, Kansas, Nebraska, South Dakota, and California from one-fifth to one-fourth or more of the farm owners sold through cooperative associations. Several of these States are surplus-producing sections for grain, livestock, and dairy products. California produces large quantities of fruit to be sold in the Middle West and the East. Milk in New York and fruit in Florida, Colorado, Utah, and Washington are important factors in raising the percentages in these States above those in adjacent States

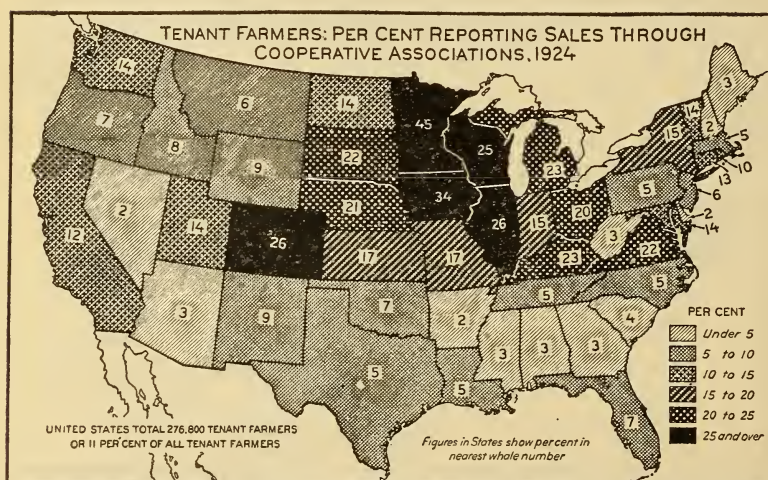


FIGURE 231.—In Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Kentucky, Virginia, and several Northeastern States the proportion of tenant farmers selling through cooperative associations is larger than of farmers who own their farms. In the South, probably because of the lower economic and social condition of the tenant, the proportion is much lower for tenants than for owners. In four of the eight Rocky Mountain States the proportion is higher for tenants, but in the Pacific Coast States it is lower. For the United States as a whole the proportion is nearly 50 per cent higher for owners than tenants, but this is largely owing to conditions in the South

## MARKETING AND PURCHASING ASSOCIATIONS, 1885-1925

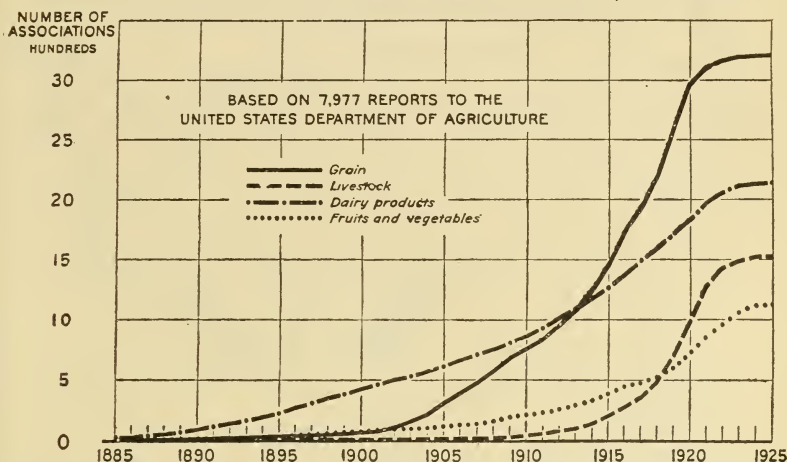


FIGURE 232.—The increase in number of cooperative-marketing associations was rapid until about 1922. Since then the associations have increased in size rather than in number. The associations selling dairy products increased rapidly in number prior to 1900, but by 1913 they were overtaken by grain-marketing associations, which are now most numerous, exceeding 3,000 in number. Since 1913 there has been, similarly, a rapid increase in number of livestock-selling associations. Fruit and vegetable marketing associations have increased more gradually in number, like those dealing in dairy products, and are now only a little over 1,000 in number. (This chart is based on 7,977 reports to the United States Department of Agriculture)

## ESTIMATED MEMBERSHIP OF MARKETING AND PURCHASING ASSOCIATIONS, 1915 AND 1928

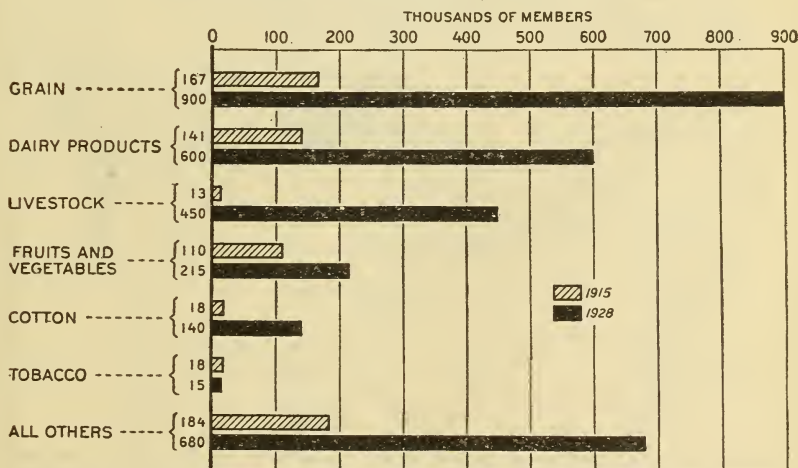


FIGURE 233.—The membership of cooperative marketing and purchasing associations increased about fourfold between 1915 and 1928. The membership of associations marketing grain increased more than five times, and the membership of associations marketing dairy products more than trebled, but associations marketing fruits and vegetables did not quite double in membership. On the other hand, the membership of associations marketing livestock increased from about 13,000 to 450,000 during the 13 years and the cotton-marketing associations increased from 18,000 members to about 140,000. Tobacco associations had fewer members in 1928 than in 1915, owing to the fact that, about 1921, many tobacco growers became members of seven large-scale organizations, five of which had gone out of business by 1928. (This map is based on the associations listed by the United States Department of Agriculture)



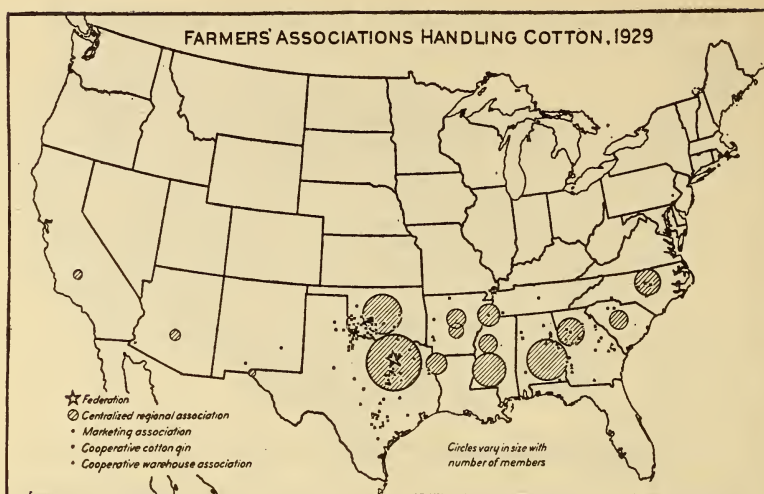


FIGURE 234.—Large-scale cotton-marketing associations have been formed in all of the Southern States except Florida, also in Arizona and California. The largest quantities of cotton of the 1928 crop handled cooperatively were marketed by the associations in Texas and Alabama. Although cooperatively operated cotton gins are found in most of the Southern States, they are present in the largest numbers in Oklahoma and Texas. A selling agency for most of the large-scale associations has been established at Dallas, Tex. (This map and fig. 235 are based on the associations listed by the United States Department of Agriculture)



FIGURE 235.—The cooperative marketing of dairy products first developed with the distribution of cheese and butter in New York State. Later the farmers of Wisconsin and Minnesota became interested in the cooperative method of making and marketing cheese and butter. To-day 73 per cent of all the associations marketing dairy products cooperatively are in Wisconsin, Minnesota, and Iowa. In New York and New England the problem has become primarily that of marketing whole milk, which has been accomplished through associations operating over large areas. Milk-marketing associations operating as distributing companies or as bargaining organizations have been established in the producing areas around many of the large cities, notably Boston, Hartford, New York, Philadelphia, Baltimore, Washington, Pittsburgh, Cincinnati, Columbus, Cleveland, Detroit, Chicago, Milwaukee, Minneapolis, St. Louis, Los Angeles, and Seattle





FIGURE 236.—Fruit and vegetable marketing associations are numerous in the districts of specialized production. In southern California, in a territory of only a few thousand square miles, there are 161 local associations, 20 subexchanges, and 5 federation headquarters; and in the Great Valley and the San Francisco Bay areas there are 141 local associations, 4 subexchanges, 5 centralized associations, and 2 federation headquarters. A large part of the fruit and vegetable crops of California are marketed through cooperative organizations. In Florida a similar development is taking place. Many local associations may be noted in western New York, western Michigan, the Ozark district of Missouri and Arkansas, and in the irrigated valleys of the Western States. (This map and fig. 237 are based on the associations listed by the United States Department of Agriculture)

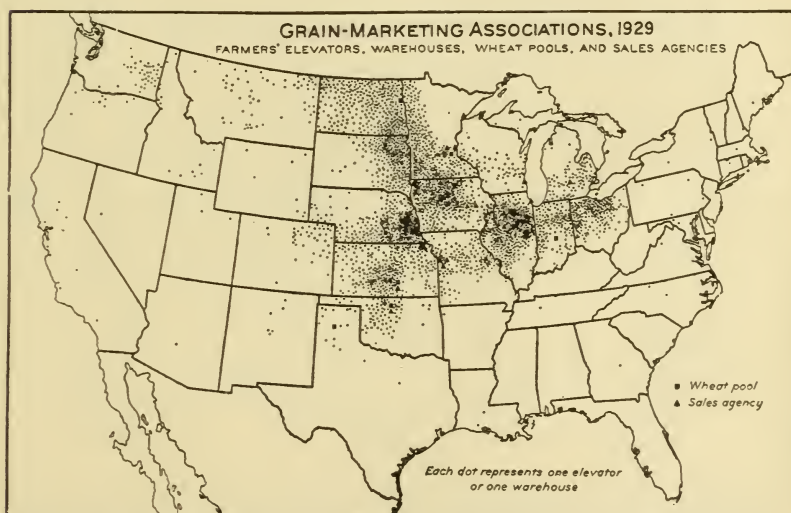


FIGURE 237.—Farmers' cooperative elevators are numerous in the Corn Belt, particularly in the portions in which farmers sell most of their corn, and in the spring-wheat and hard winter-wheat regions. There are very few in the soft winter-wheat sections of Pennsylvania, Maryland, and Virginia. Grain-marketing associations in the Pacific Coast States operate warehouses instead of grain elevators, grain being handled largely in sacks rather than in bulk. Wheat pools located at Fargo, N. Dak., Aberdeen, S. Dak., Minneapolis, Minn., Indianapolis, Ind., Wichita, Kans., Enid, Okla., and Amarillo, Tex., operated in 1929, and cooperative-selling services were available at Duluth, Minneapolis, Milwaukee, Chicago, Lansing, Peoria, Kansas City, Wichita, and Enid

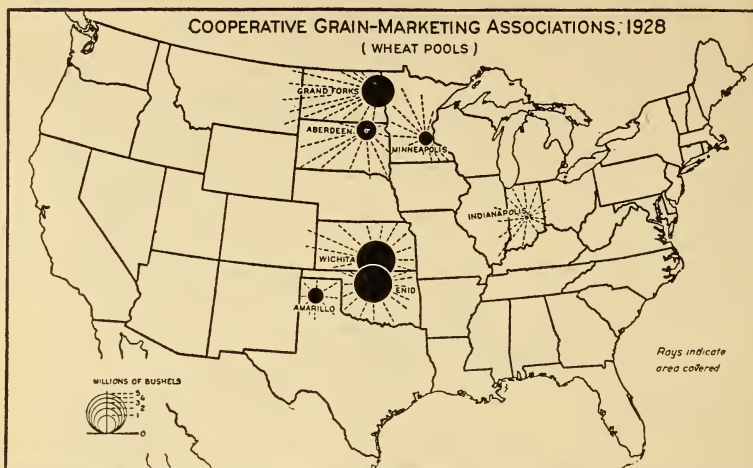


FIGURE 238.—Seven wheat pools located in the central part of the United States handled nearly 15,000,000 bushels of wheat of the 1928 crop. The greater part of this grain came from the winter-wheat districts of Kansas, Oklahoma, and the Panhandle of Texas. Three associations in the spring-wheat area received and sent to market nearly 5,000,000 bushels of wheat. An association located at Indianapolis, and serving the soft-wheat area of Indiana, Ohio, Illinois, and Missouri, marketed about 40,000 bushels of that grain. These associations are a recent development in grain marketing, the oldest of the existing organizations of this type having been formed in 1922. (This map and fig. 239 are based on the associations listed by the United States Department of Agriculture)



FIGURE 239.—Livestock-shipping associations have developed principally in the North Central States, notably in northern Illinois, Iowa, and Minnesota. In these three States were located 1,159 out of the 2,153 associations in the United States, in 1929. In many counties in these States there are 10 or more associations. Cooperative livestock marketing has not as yet developed to an appreciable extent in the far Western States, the South, nor the East, except in West Virginia and the Valley of Virginia. In addition to the shipping associations there are 28 sales agencies located in terminal livestock markets, these agencies serving the local shipping associations with selling service. There is also a large-scale cattle-marketing association operating in the far West with headquarters in San Francisco.

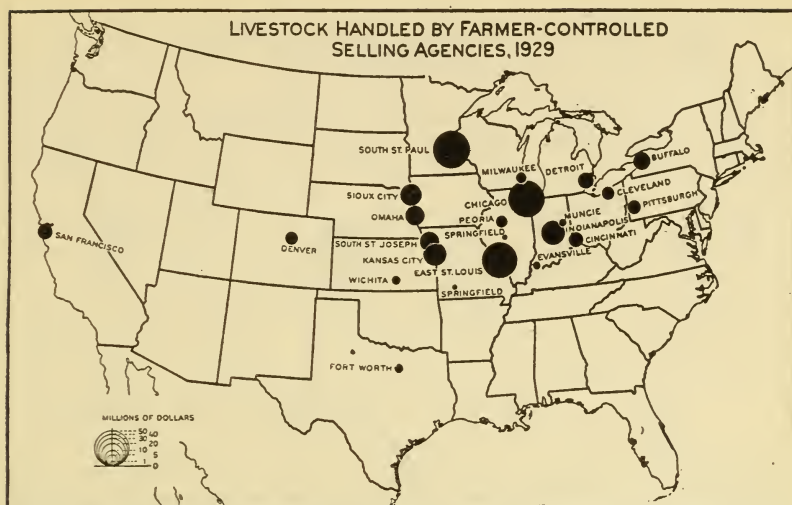


FIGURE 240.—In 1929, 28 farmers' cooperative agencies for the selling of livestock handled animals with a sales value of more than \$320,000,000. The larger of these agencies were located along the Missouri, Mississippi, and Ohio Rivers, and on the shores of the Great Lakes. They were part of the marketing machinery at the big terminal livestock markets lying on the roads leading from the cattle ranges of the West and the feed lot of the Corn Belt to the Atlantic coast cities. One association, located at San Francisco, was serving the cattle growers to the west of the Rocky Mountains. By far the greater part of this vast cooperative business has developed since 1920. (This map and fig. 241 are based on the associations listed by the United States Department of Agriculture)



FIGURE 241.—Cooperative egg marketing in a large way had its origin on the Pacific coast. Associations at Seattle, Portland, San Francisco, Los Angeles, and San Diego handled a large portion of the eggs marketed on a cooperative basis in 1929. A sales agency has been established in New York City for Pacific coast eggs. In Missouri a group of associations formed under the leadership of the Missouri Farmers' Association have established packing houses at which the eggs collected by "farmers' exchanges" in the larger towns are received, graded, and shipped to market in carload lots. Approximately 6,000,000 cases of 30 dozen eggs each were marketed cooperatively in the United States in 1929.





FIGURE 242.—Poultry marketing on a cooperative basis is of fairly recent development. Very little poultry, either alive or dressed, was marketed through producer associations prior to 1924. About 40 farmers' associations are now marketing live poultry, about 20 associations dressed poultry, and nearly 30 associations handle both live and dressed poultry. Missouri is the leading State in this form of activity, with Minnesota of second importance. An association at Seattle and another at San Francisco are heavy shippers of poultry. Many of the associations in the Rocky Mountain States are engaged in the cooperative shipping of turkeys. (This map and fig. 243 are based on the associations listed by the United States Department of Agriculture)

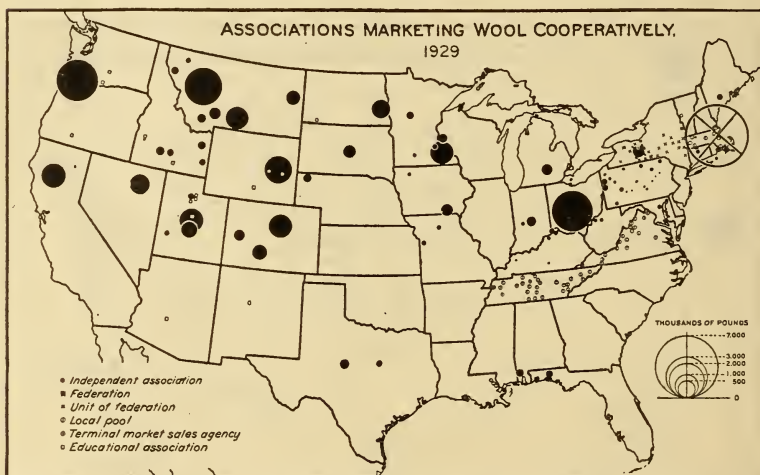


FIGURE 243.—Wool producers have been marketing the annual clips collectively for more than 40 years. The first associations consisted of small groups of farmers closely associated. This form of cooperation still prevails in some sections, notably in Pennsylvania, Virginia, and Kentucky. About 1918 the regional associations, serving the wool producers of large areas, began to develop. More recently came sales agencies located in the central markets, that receive shipments from associations in the producing areas which they market on a cooperative basis. The largest of the regional associations are in Ohio, Minnesota, the Dakotas, the Rocky Mountain States, Oregon, and California. Nearly 20,000 wool producers are members of cooperative-marketing organizations

## NUMBER AND SIZE OF FARMS

About half the farms of the United States are in the southeast quarter of the country, and nearly two-thirds of these southern farms grew cotton in 1924. In those parts of the Cotton Belt in which the boll weevil did the most damage the losses of farmers and landowners were so great as to make it necessary for a large proportion of the people on farms to seek a living elsewhere, decreasing the number of farms and partially depopulating large sections from eastern Texas to North Carolina. (Fig. 246.) Moreover, the substitution of automobiles and tractors for work animals, principally in the North and West, decreased the amount of land required to pasture and to raise grain and hay for these animals and their colts, thereby increasing the amount of crop and pasture land available for meat and milk animals and indirectly depressing the prices for animals and animal products. If this more severe competition had not developed, much land going out of use by small cotton farmers might have been utilized as larger farms by livestock farmers.

In cotton-growing sections generally cotton is largely grown by farmers who operate farms of less than 50 acres in size, so that where the acreage in cotton is cut the number of farms of less than 50 acres in size is likely to be reduced, whereas an expansion of cotton acreage is usually accompanied by an increase in the number of farms of less than 50 acres. (Figs. 254 and 253.)

To the north of the Cotton Belt, in North Carolina, Virginia, eastern Kentucky, and Tennessee an increase in farms has occurred, mostly farms of less than 50 acres in size. (Fig. 253.) Much of this increase is associated with the progress of industrialization in this region. The increase in the populations of mill and mining towns has expanded the markets for locally grown dairy products, poultry, eggs, vegetables, fruits, and firewood. Here, and in New England and New York especially, improved roads and automobiles have played their part in the increase in small farms.

Increased mechanization of agriculture has led to much conjecture as to the trend toward larger farms, but between 1920 and 1925 the number of farms 260 acres and over in size actually decreased 7 per cent, whereas the number of farms of less than 50 acres in size increased 5 per cent, taking the country as a whole. A tendency to work the same land as fewer farms of greater acreage doubtless led to a decrease in number of farms of 260 acres and over in Montana and North Dakota (fig. 260), and as the farms of 100 to 259 acres also decreased in number, some of these probably were likewise consolidated into larger farms. (Fig. 258.) From central South Dakota south into western Texas there was some increase in numbers of farms of 260 acres and over, due to expansion of grain farming to lands formerly used in large units for range purposes, the same land being used, but as a greater number of farms and for another type of farming. (Fig. 259.) The great decrease in farms of less than 260 acres in the Southeast, in Georgia particularly (figs. 254, 256, and 258), was owing largely to land being so far abandoned as to be no longer counted as land in farms. (Fig. 13). This change was accompanied by almost no increase in numbers of farms of 260 acres and over, a change which would have occurred had the land in these smaller farms been retained as farm land but consolidated into farms of larger size.

H. A. TURNER.

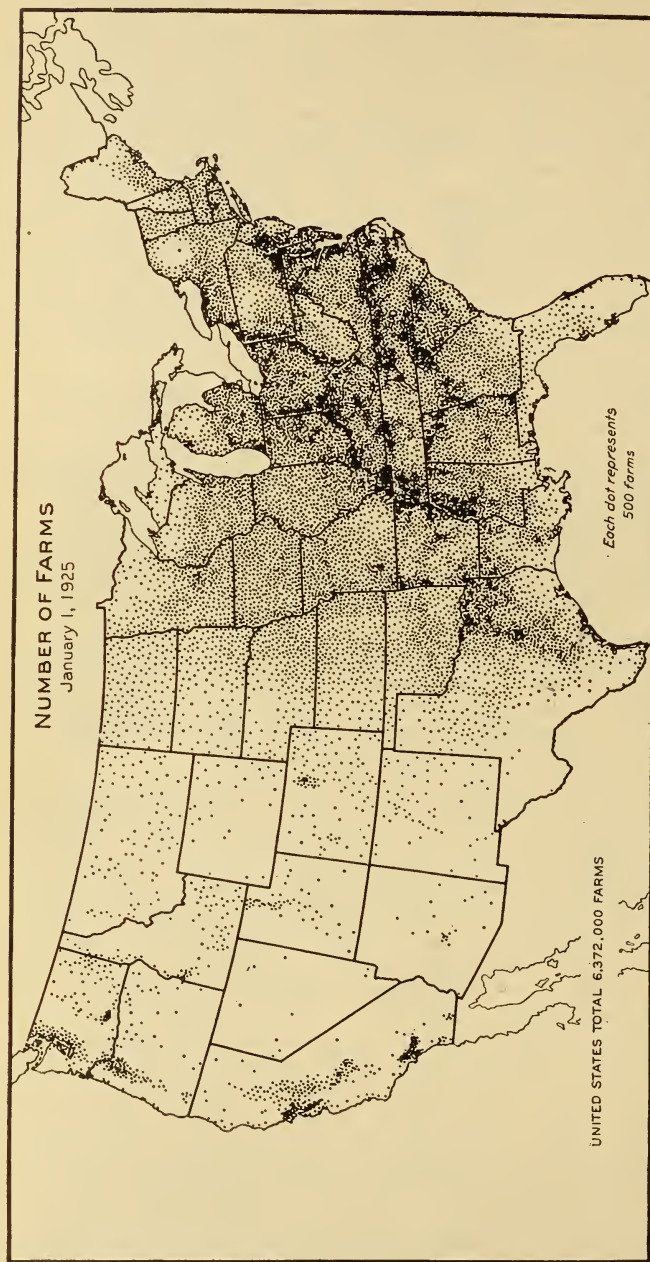


FIGURE 244.—The influence of type of farming on size of farms, and the large proportion of the land that is in farms, causes farms to be relatively numerous in the dairy and trucking districts near Philadelphia, in the tobacco-growing districts of North Carolina and Kentucky, and in parts of the Cotton Belt, notably the upper piedmont of South Carolina and Georgia, and in the black prairie of eastern Texas. Over half of the farms in the United States are in the Corn Belt and corn and winter-wheat belts. The Corn Belt, although it includes one-third of the farm property in the United States, has only one-eighth of the farms.



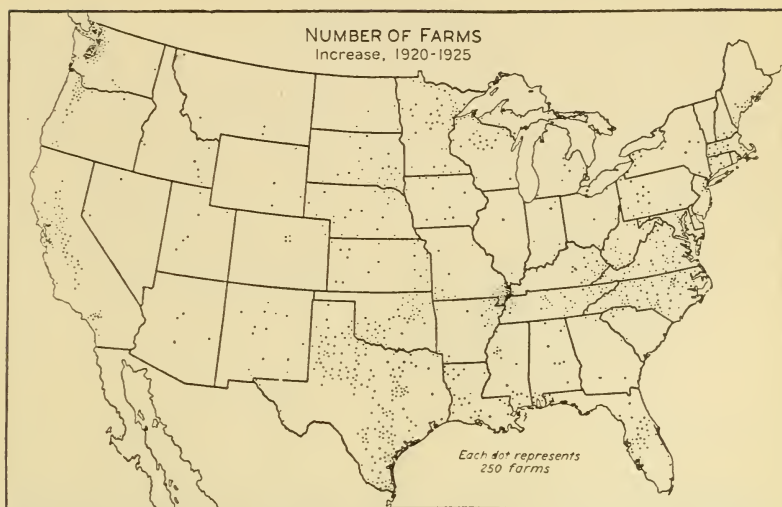


FIGURE 245.—The increase in number of farms between 1920 and 1925 occurred principally in the western Cotton Belt, in the recently drained portions of the Mississippi River bottoms south of Cairo, in North Carolina, Virginia, and the adjacent portions of Kentucky and Tennessee, in central Texas from the Panhandle to the Rio Grande at the Gulf, in central Florida, in the northern portions of Wisconsin and Minnesota, and in the valleys of the Pacific coast regions. It is significant that almost no increase in number of farms occurred in the northern and central portions of the Great Plains, where the increase in acreage of harvested crops was greatest. (Fig. 15)

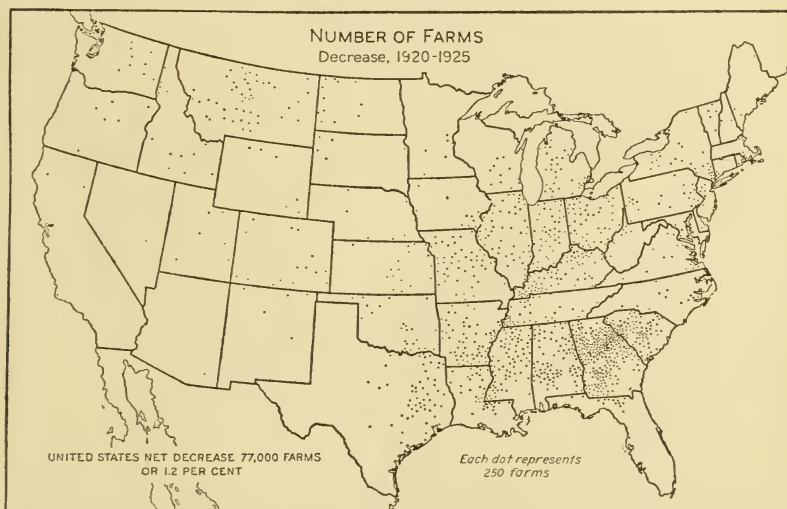


FIGURE 246.—The decrease in number of farms was notable in the eastern Cotton Belt, especially Georgia, where it reached 20 per cent, and much land went out of use by farmers. A smaller decrease may be noted in the eastern Corn Belt, where the trend is still toward consolidation of farms, and in the northern Plains, where several dry years caused the abandonment of many recently homesteaded farms. Consolidation of two or more farms into one has also occurred in this region. The decrease in number of farms was greater than the increase, the net decrease for the United States being 77,000, or over 1 per cent

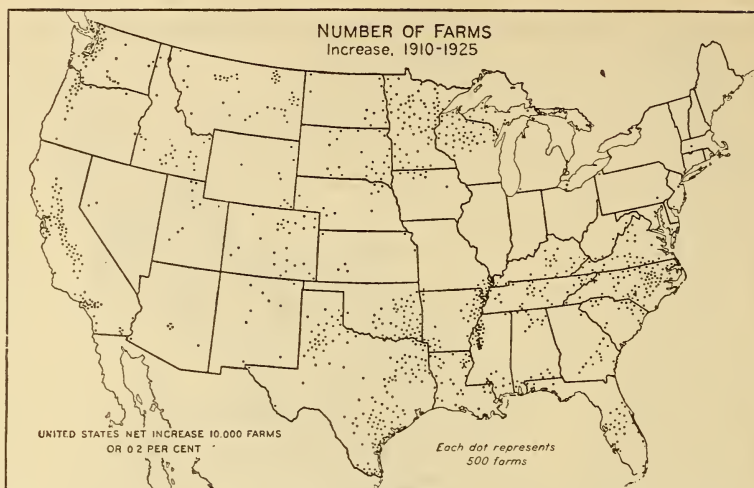


FIGURE 247.—The map reveals several areas of increase: (1) In and near North Carolina, assignable largely to natural increase of population and outstanding advances in agriculture, industry, and transportation; (2) the upper Mississippi Delta, assignable largely to drainage; (3) Texas and eastern Oklahoma, owing in part to the introduction of new crops and to lesser boll-weevil injury to cotton than further east; (4) northern Minnesota, Wisconsin, and Michigan, where foreign immigrants with low standards of living have settled on cut-over lands; (5) parts of the Great Plains, where drought-resistant crops and greater use of power have permitted transformation of much grassland into grain land; and (6) California and the north Pacific coast, where fruit and vegetable production and dairying have developed rapidly

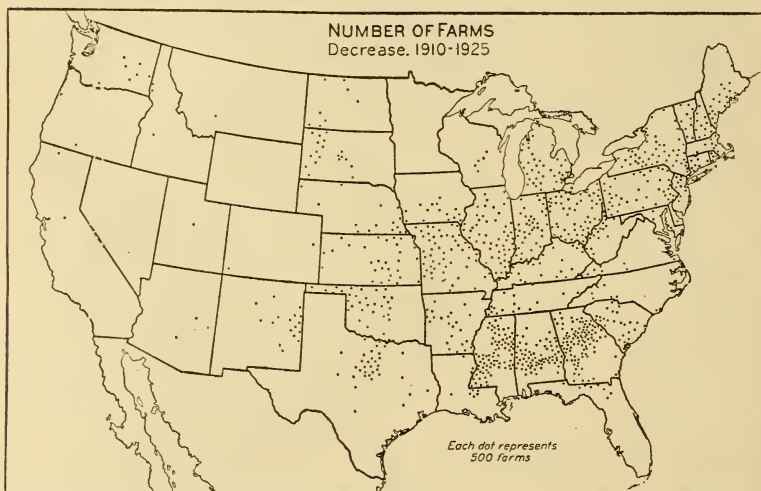


FIGURE 248.—The decrease in number of farms between the pre-war year 1910 and the year 1925 occurred principally in four areas: (1) In the eastern Cotton Belt from Mississippi to South Carolina, assignable largely to the devastations of the boll weevil (fig. 42); (2) the Northeastern States, including Michigan, where hilly or less fertile lands have made it more difficult to benefit from improvements in farm machinery than in better farming sections and where the cities have competed sharply with the farms for labor; (3) the eastern and southern Corn Belt from Ohio to Kansas, where consolidation of farms has been taking place and some land has reverted from crops to pasture; and (4) western Oklahoma and parts of Texas and New Mexico, assignable to the same causes

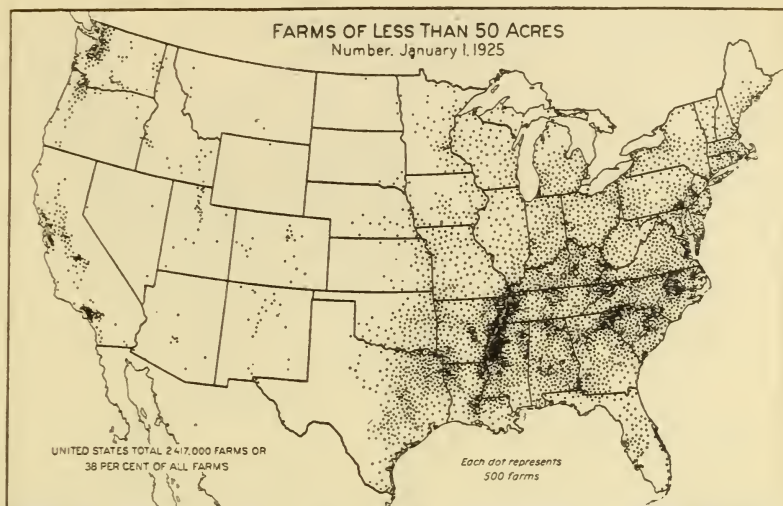


FIGURE 249.—The typical negro tenant farm in the South is 30 to 50 acres in size, half of which is in cotton. Many white farmers also have small farms, especially those that grow cotton or tobacco. In the Pacific Coast States most of the small farms, measured in acres (not value) grow fruits and vegetables, which also require much labor per acre. Few farms under 50 acres are located in the spring-wheat or hard winter-wheat regions, or in the western Corn Belt, because grain and hay farming have been so mechanized that only a few hours of labor can be profitable given each acre in these crops. The small farms shown in the Northern States are mostly devoted to fruits, vegetables, and poultry; a few are intensive dairy farms.

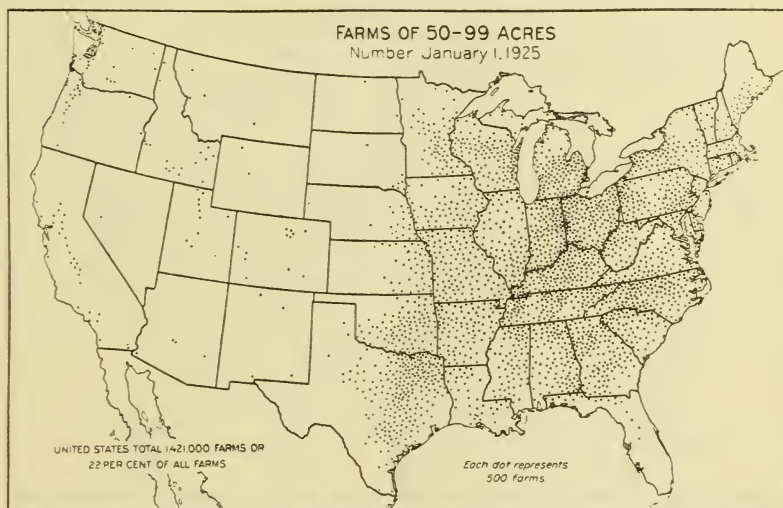


FIGURE 250.—Farms of 50 to 99 acres are characteristic of the white cotton farmers of the upper Georgia-Carolina piedmont and of the black prairie of Texas; also of the fair-to-good soils and mixed-farming systems of Tennessee, Kentucky, Ohio, Indiana, and Michigan. In Michigan, Wisconsin, and New York many dairy farms are of this size. Farms of this size have been mostly carved out of the forest—even in a lifetime the pioneer could scarcely clear more land. The dots in Kansas, northern Missouri, Iowa, and central Illinois represent largely farms along the forested stream borders, or those devoted to more intensive systems of farming than are characteristic of the region.



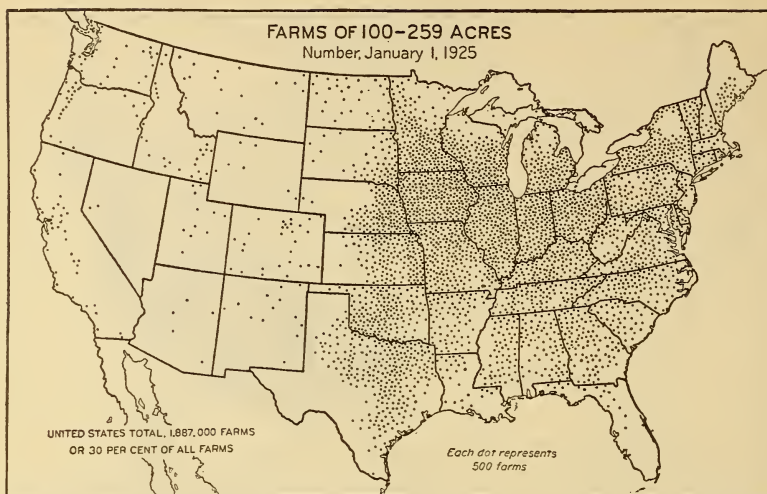


FIGURE 251.—Farms of 100 to 259 acres are typical of the North Central and the Northeastern States. A quarter section, or 160 acres, had been found ample for a farm family to cultivate in the Northern States during the years prior to the Civil War, and this size was perpetuated by the Homestead Act in the settlement of the prairies of Iowa and southern Minnesota, of eastern Kansas and Nebraska. In recent decades, however, there has been a tendency to increase this size by the purchase or renting of another 40 or 80 acres. In the South many portions of the plantations operated by the owners are between 100 and 260 acres in area, as is true of many other farms operated by white owners, especially in Texas.

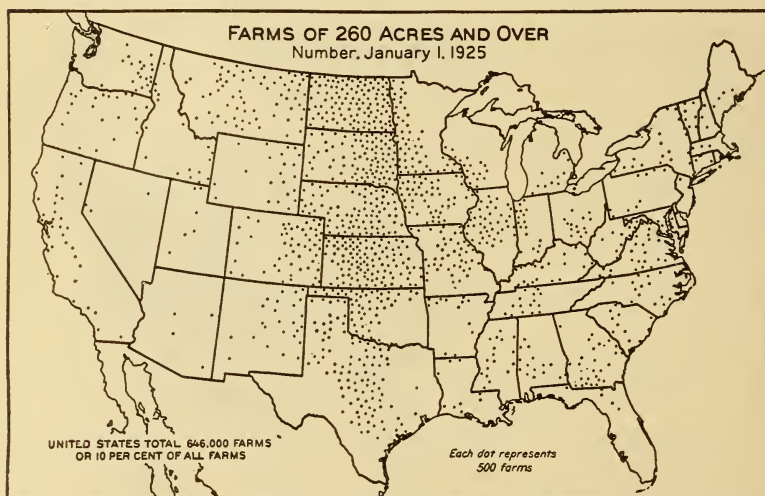


FIGURE 252.—Farms large in area (over 260 acres) are characteristic of the spring-wheat and hard winter-wheat regions and of the western Corn Belt. The availability of large bodies of level land, having climatic conditions especially adapted to grain, and originally in short-grass sod that was easily turned into arable land, invited the use of machines requiring large farms to make them economical. In the semiarid portions the low crop yields and large acreage in pasture make large areas necessary to support a family. A few large farms may be noted in the Cotton Belt, Virginia, and Kentucky, often remnants of old plantations; and a few more farms of this size are found in New York and New England, but these frequently consist mostly of hilly pastures or woodland. In the Pacific Coast States these large farms are mostly grain or cattle ranches.

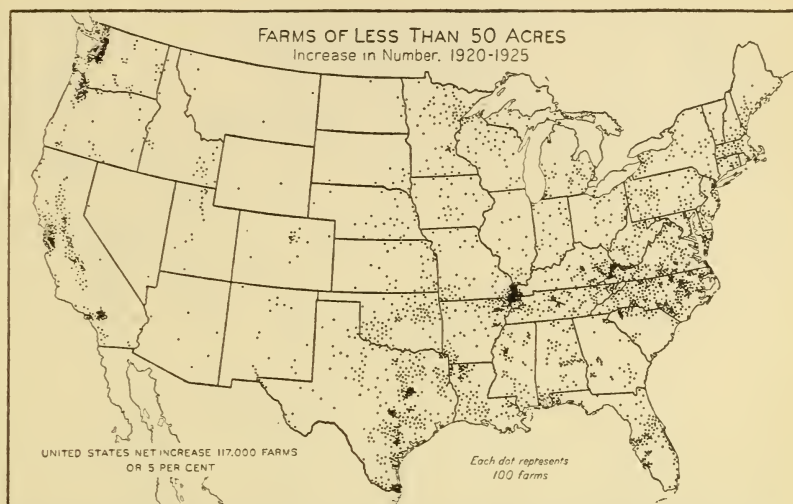


FIGURE 253.—The increase in farms of less than 50 acres was notable in California and western Oregon and Washington, where fruit and vegetable production has increased greatly. In Texas the increase occurred in connection with expanded production of cotton, vegetables, fruit, and dairy products. In the Delta south of Cairo, Ill., drainage accounts for the increase of small farms, many of which are devoted to cotton. In eastern Kentucky and Tennessee the increase is owing principally to increasing population, with some subdivision of farms. In North Carolina, Virginia, and northward the increase is owing partly to development of the tobacco and trucking industries and partly to the "amphibian" farmers, who work in the city but live on a little place in the country.

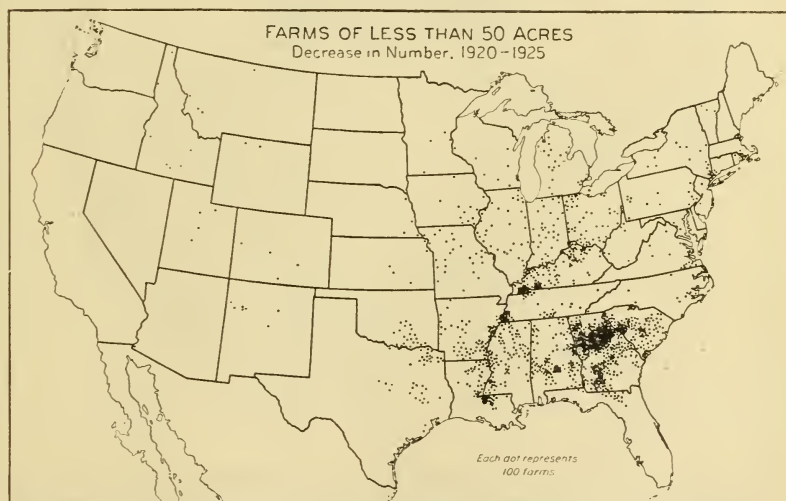


FIGURE 254.—The decrease in farms smaller than 50 acres took place mostly in Georgia and South Carolina. These were largely cotton farms, growing corn also for feed and food. The devastation of the boll weevil, together with the low price for corn and hogs, prevented many farmers from making a living. As a consequence thousands moved to the cities, both in the South and North. This same situation existed in Alabama and Mississippi but in less degree. In Kentucky the decrease in farms of less than 50 acres occurred mostly in the tobacco districts.

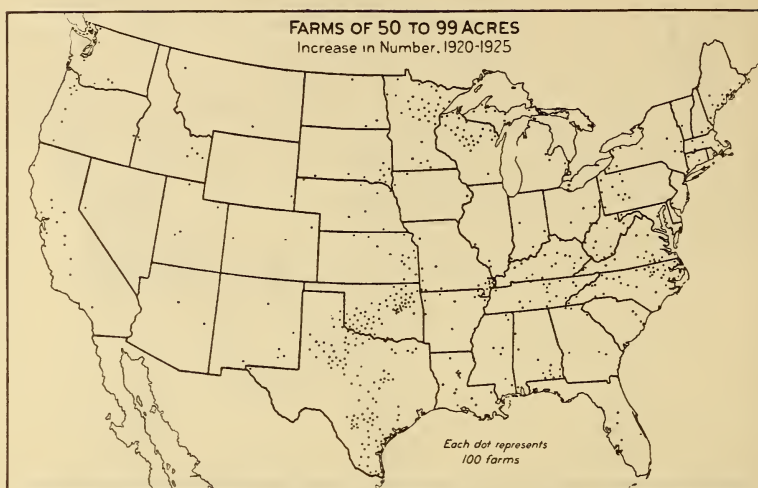


FIGURE 255.—The increase in farms of 50 to 99 acres was small and scattered. The greatest increase occurred in Texas and Oklahoma, associated with decrease in farms of 260 acres and over. This is doubtless due in part to the breaking up of cattle ranches for the production of cotton and grain. In Oklahoma much of the increase in farms of 50 to 99 acres, as well as those of under 50 acres (fig. 253), occurred in districts of rapid urban development. The increase in northern Minnesota and Wisconsin consists almost wholly of new farms cleared out of the forest

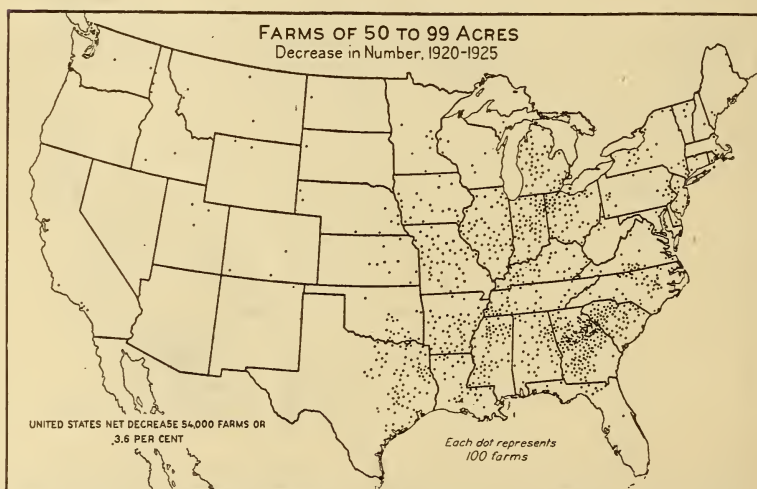


FIGURE 256.—The decrease in farms of 50 to 99 acres, like those of less than 50 acres, was greatest in Georgia and South Carolina, and for the same reasons. (Figs. 254.) In Ohio, Indiana, Illinois, and Michigan the decrease was also due in part to the unprofitableness of agriculture; but the high wages in near-by cities was a factor, many farmers leaving their farms to be operated by a relative or neighbor while they worked in the cities. In the Northeastern States the decrease is due not only to consolidation of farms, but, in some of the hilly districts, to abandonment of farms. This is true also of parts of northern Michigan



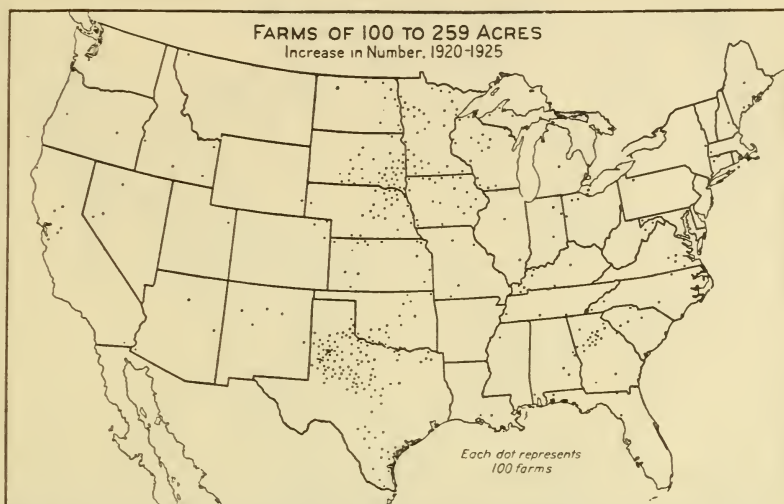


FIGURE 257.—The increase in farms of 100 to 259 acres was almost confined to the Great Plains States and Minnesota. In Texas the increase was in the western half of the State, and there it was partly at the expense of farms of 260 acres and over (fig. 260), the spread of cotton production, in the Panhandle especially, causing the breaking up of many cattle ranches. In eastern South Dakota and western Minnesota there was a tendency toward the subdivision of the large farms, doubtless owing largely to the decline in wheat production and the development of dairying in the northern portion and of corn and hog farming in the southern portion of this territory

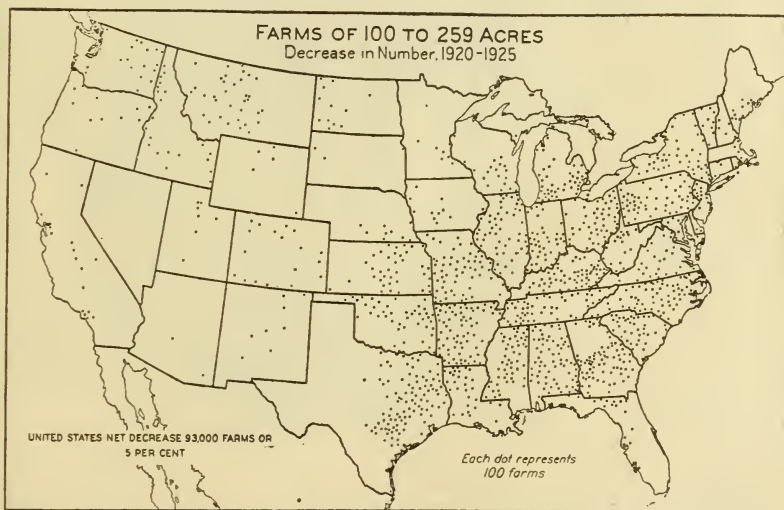


FIGURE 258.—The decrease in farms of 100 to 259 acres was almost universal in the eastern (originally forested) portion of the United States, and there was no corresponding increase of farms of other sizes, except those of less than 50 acres. (Fig. 253.) In Georgia and South Carolina the number of these small farms also decreased greatly; that is, there was a notable decrease in farms of all sizes. (Fig. 246.) This is true to a less extent in Alabama, Mississippi, Kentucky, and the eastern Corn Belt. Improved roads and cheapened automobile transportation have had much to do with this increase of small farms in many Eastern States, at the expense of larger farms at a time when the mechanization of agriculture is increasing the acreage a man can operate

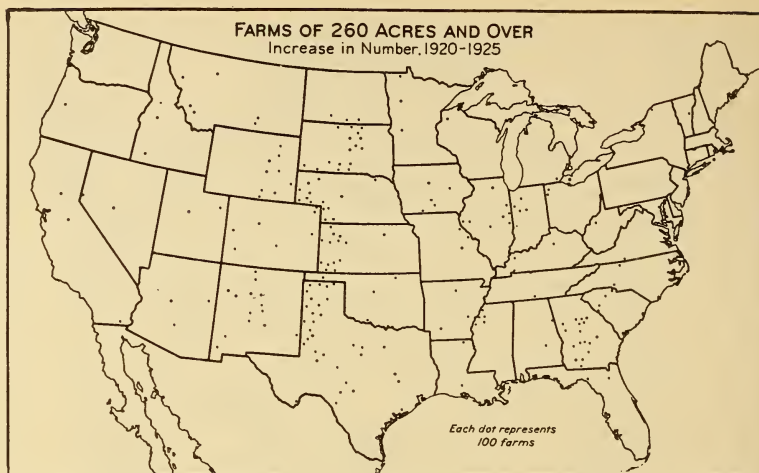


FIGURE 259.—Large farms (over 260 acres) increased along the semiarid edge of crop production in the Great Plains region where, by means of large units of power (tractors, and horses in multiple hitch), it was becoming profitable to produce grain on drier land than could be advantageously cultivated in previous years. Some of these increases in large farms (in area) were also owing to the grazing homestead act of 1916, which permitted entry on 640 acres of public land. The increase in farms of 260 acres or over shown in several counties in Iowa, Illinois, Mississippi, and Georgia was counterbalanced by decreases in other counties. (Fig. 260.) Certainly the map fails to show any general increase in large farms

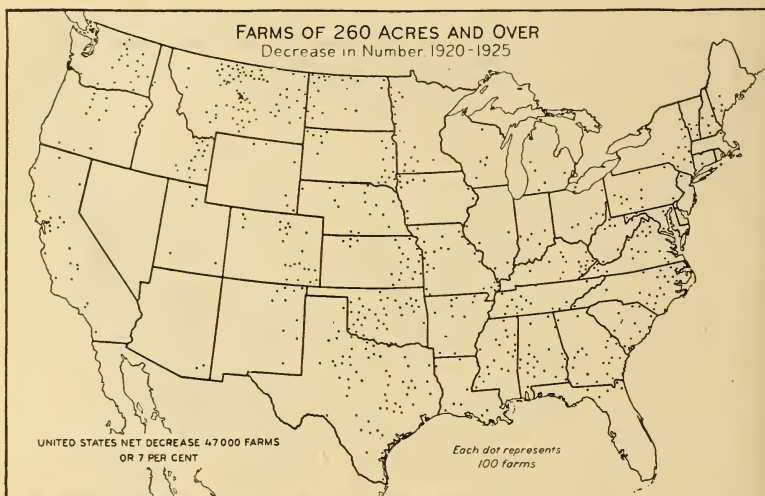


FIGURE 260.—The net decrease of 7 per cent in farms of 260 acres and over in the United States does not confirm the impression that improved machinery has increased the number of large farms. Only in Illinois, Wyoming, Nevada, Arizona, and New Mexico were there net increases in farms of over 260 acres. Decreases were relatively small in the Corn Belt and dairy belt. Compared with the number of farms of this size, declines were heavy in Montana, Idaho, Washington, and Oregon, where some land was temporarily abandoned for farm use and other land was consolidated into farms of still larger size. Decreases were heavy also in most of the South and as far north as the Ohio River and New York, owing to subdivision of some large farms and abandonment of the more isolated and less fertile farm land

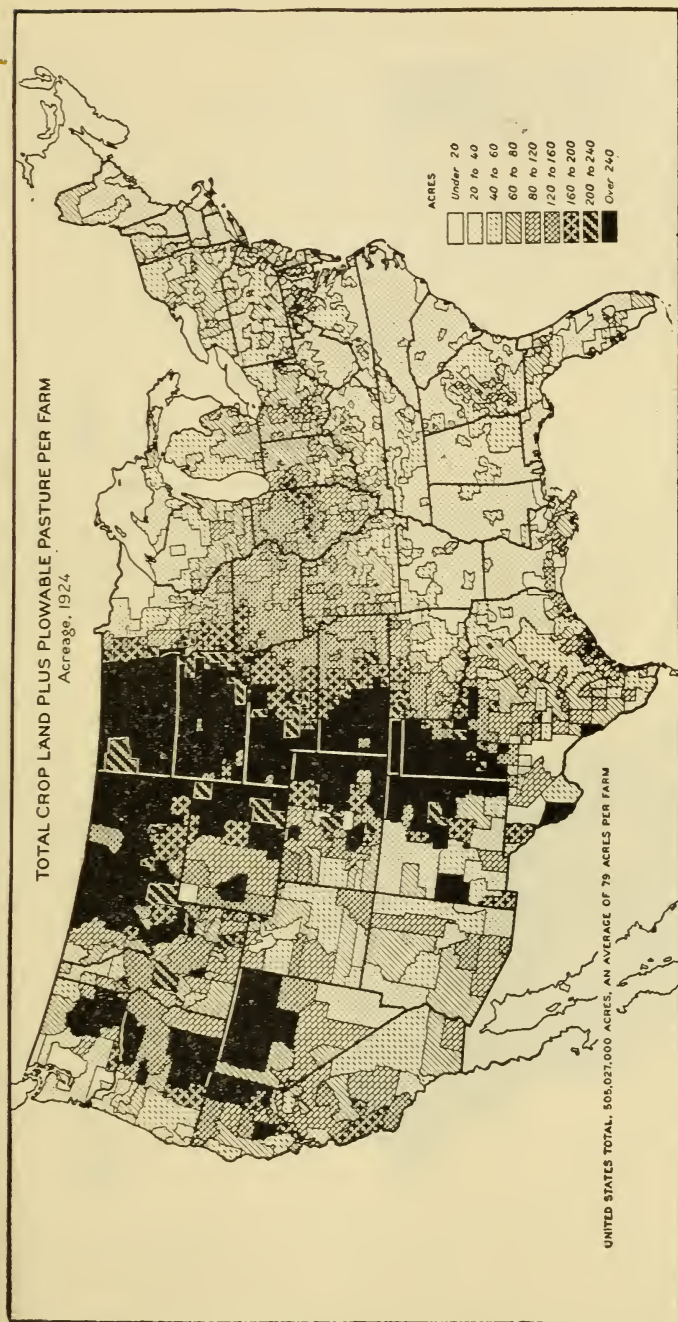


FIGURE 261.—Since many farms contain woodland or almost unproductive pasture, a better statistical measure of the size of a farm than total acreage is the acreage of crop land plus plowable pasture. Measured thus, the Great Plains, including the Dakotas and most of Montana, and extending south to the Texas Panhandle, is the region of large farms. The eastern border of this region, where the farms average about 240 acres, is roughly the line of 23 inches of annual precipitation, and only 50 to 100 miles east of this border, at about 27 inches of rainfall, the size descends to 160 acres. Still farther east, along the prairie-forest border, the average size decreases to 80 acres, and in most of the South, except Texas and Oklahoma, it is less than 40 acres.



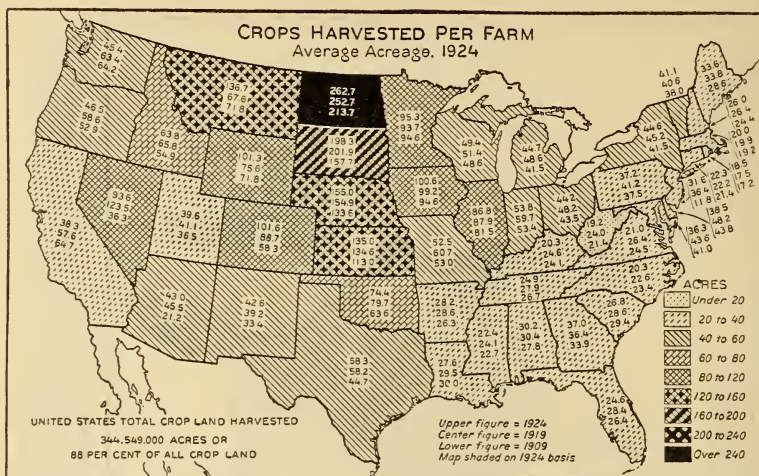


FIGURE 262.—Measured by area of crops harvested, the farms average largest in North Dakota (263 acres) and smallest in Rhode Island (18.5 acres). In New England the small size is owing partly to many small home places operated by factory employees and business men to provide garden and poultry produce for the family, but in the South the small size is due primarily to the cotton and tobacco crops, which require the labor of an entire family to harvest 20 acres. On the other hand, the large size from North Dakota to Kansas is due principally to the small-grain crops which can be harvested by machinery. Crop acreage harvested per farm decreased between 1919 and 1924 in most States outside the Great Plains region

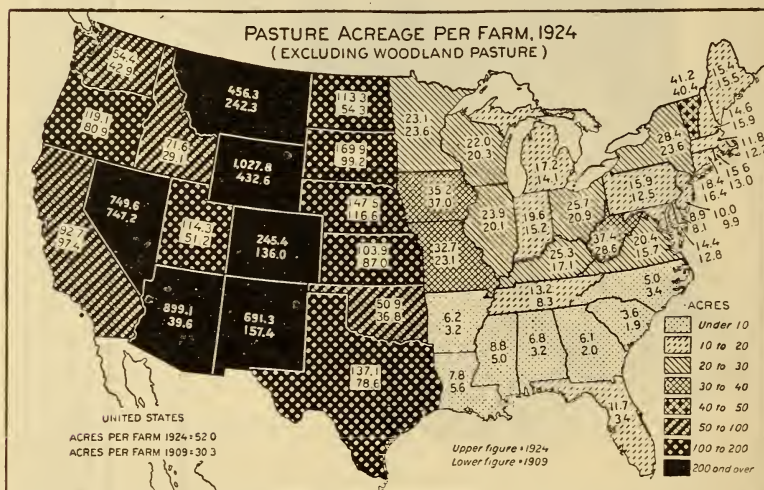


FIGURE 263.—The pasture acreage per farm is large in the original grassland portions of the United States, and the drier the climate the larger the pasture acreage. In the grazing and irrigated-crops region the figures fail to show the full acreage of pasture, since many farmers graze stock also on the public domain and in the national forests. In the South many farmers let the stock graze over wide areas of woodland pasture, and in the North many farm wood lots are used for pasture. This natural pasturage in the West and woodland pasture in the East, however, has mostly a low carrying capacity. There has been a large increase in pasture acreage in most States since 1909

## VALUE OF FARM PROPERTY

The drastic changes in the value of farm property during the last 20 years have provoked no little concern among those interested in American agriculture—concern not only as to the immediate consequence of those changes but also as to the more lasting results of these changes and the fundamental forces that have been operating to bring them about. The purpose of this section is to depict certain of the more conspicuous changes in values during recent years, particularly in the period 1910 to 1925.

The first group of maps and graphs (figs. 264 to 266) presents several aspects of the value of all farm property. It is especially noteworthy that since 1910 there has been a perceptible change in the relative importance of the types of capital goods employed in American agriculture. The percentage of total value of all farm property represented by buildings increased from 1920 to 1925; the percentage represented by livestock decreased from nearly 11.5 per cent in 1910 to about 9.5 per cent in 1925; but the percentage represented by machinery and equipment increased from 3.1 per cent in 1910 to 4.6 per cent in 1920, and to 4.7 per cent in 1925.

These changes in relative importance are attributable not only to changes in prices but to changes in number, quality, or kind. The decline in the value of livestock, for example, is in part owing to the marked decline in cattle numbers as a result of the drastic postwar liquidation of herds and in part to the rapid displacement of horses and mules by the tractor and the automobile, which aided in depressing horse prices to a level in 1925 that was only slightly more than half that of pre-war years, and resulted in a decline in the number of horses on farms to the lowest figure in a quarter of a century. During the 5-year period the number of tractors on farms increased from 246,083 in 1920 to 505,933 in 1925, an increase of 106 per cent. The increase in the proportion of total value represented by machinery is, perhaps, more significant than these value figures would indicate because of marked changes in the kind of machinery and notably in the development and widespread adoption of the combined harvester-thresher, the corn picker, and the all-purpose tractor. The dominating importance of land and buildings should be borne in mind in making all of these value comparisons. In 1925 the value of land and buildings constituted 86.8 per cent of the total value of all farm property.

The second section of maps and graphs (figs. 267 to 280) relates to various aspects of the changes in value of farm real estate and to the components thereof—land and buildings. Most of these charts do not show the trends in values since 1925, but Figure 274 does present by census divisions the farm real-estate price index of the Bureau of Agricultural Economics up to and including 1929. From this chart it is apparent that the reaction following the boom, which reached its height in 1920, did not affect all sections of the country in the same manner, nor did farm real-estate prices rise everywhere to the same extent during the boom.

The third section (figs. 281 and 282) exhibits the distribution over the United States, and the value per farm, of all livestock on farms and ranges; and the last section (figs. 283 and 284) shows similar features for farm implements and machinery.

E. H. WIECKING.

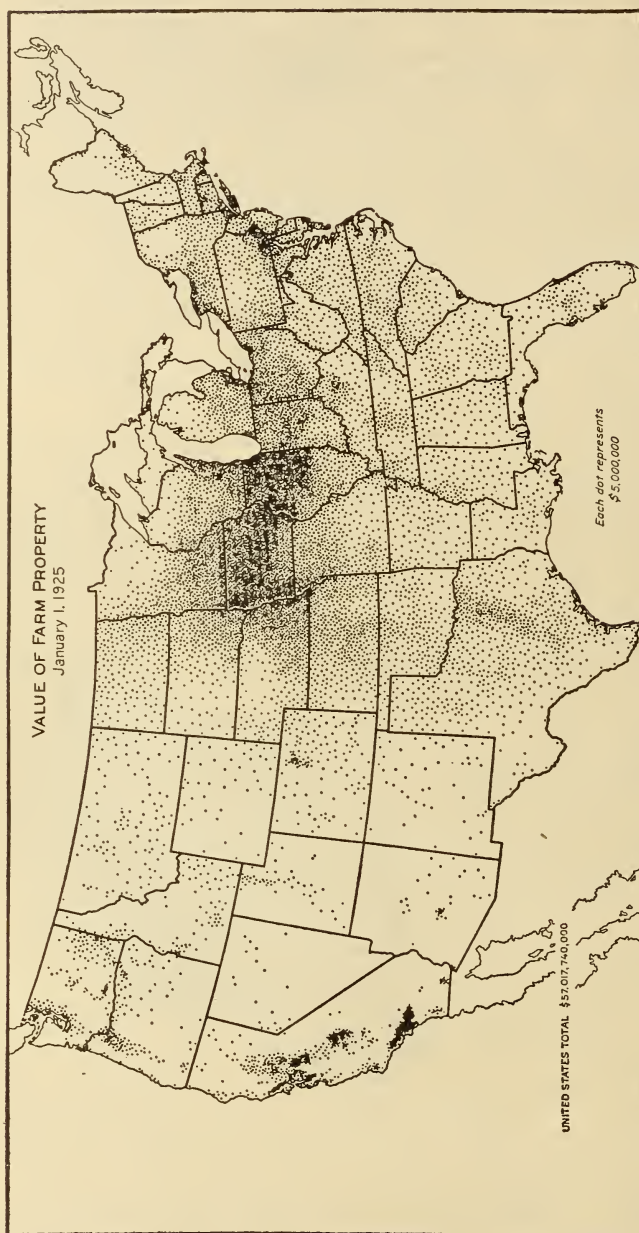


FIGURE 264.—About one-third of the value of farm property in the United States is in the Corn Belt, and nearly two-fifths of the value of farm land. The average value of farm land per acre was \$92 in the Corn Belt, \$30 in the Cotton Belt, \$45 in the hay and dairy region, and \$11 in the United States as a whole. The corresponding figures for all farm property per acre are roughly \$150, \$43, \$70, and \$62. Only in the Pacific subregion does the value of farm land or farm property per acre exceed the value in the Corn Belt. A concentration of value is evident in the vicinity of the large cities as well as in sections of rich soils in the East, and in the valleys (especially if irrigated) in the West.



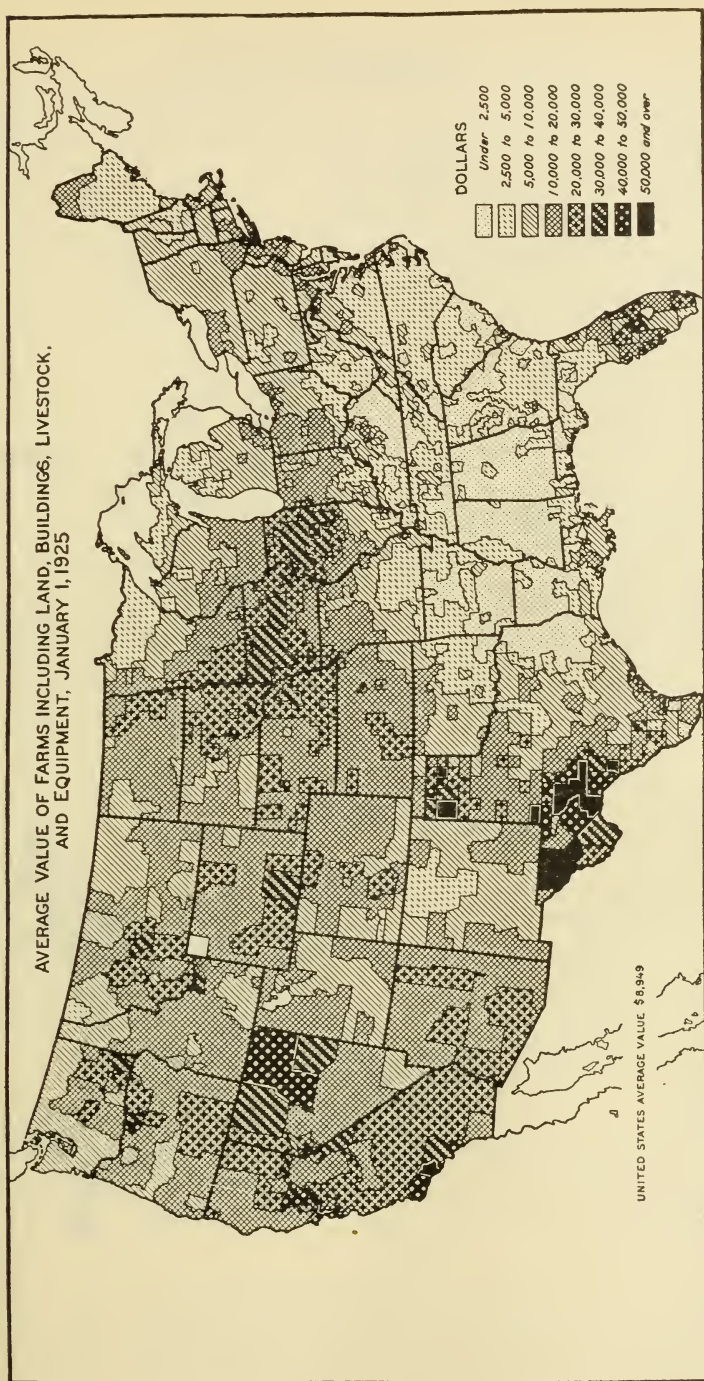


FIGURE 265.—The total value of any farm is a combination of many factors, as per-acre value, number of acres, value of buildings, number and kind of livestock, equipment, and other items. Hence a high valuation of farm property may arise from a few acres of very high-priced land, as in certain sections of California, or from a large holding of cheap land, with considerable livestock, as in parts of the Rocky Mountain region. The average total value of an Iowa farm (land, buildings, livestock, and equipment) on January 1, 1925, was \$26,240, and of a California farm \$25,107. Similar figures for the several census divisions range from \$2,881 in the east South Central to \$18,680 in the Pacific States.

### VALUE OF FARM PROPERTY, BY CLASSES 1850-1925

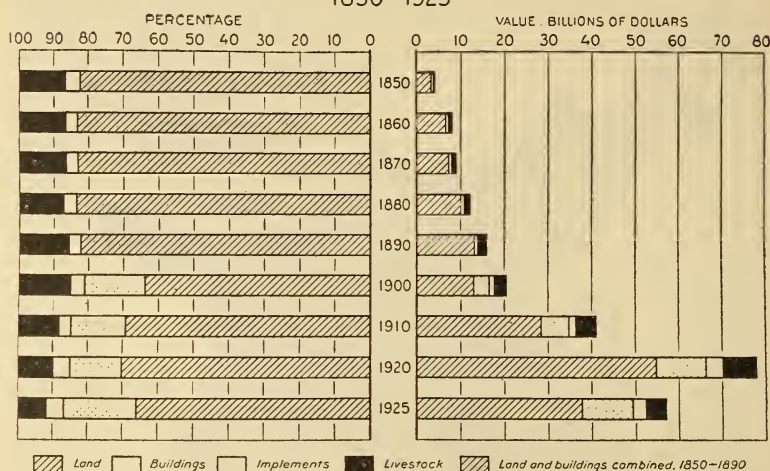


FIGURE 266.—Over the period 1850 to 1920 the value of farm property increased with each census, all classes of this property contributing to the increase, and up to 1900 undergoing no material change in relative importance. Since 1910, however, the relative importance of buildings has yielded to the growing importance of equipment, and since 1920 to a greater relative value of buildings. Nevertheless the value of livestock in 1925 was greater than in any previous census, except 1920, despite the decline in the number of horses. On January 1, 1925, the value of farm buildings alone constituted 2.3 per cent more of the total value of farm property than on January 1, 1920, while both land and livestock decreased not only in total value but relatively to the total.

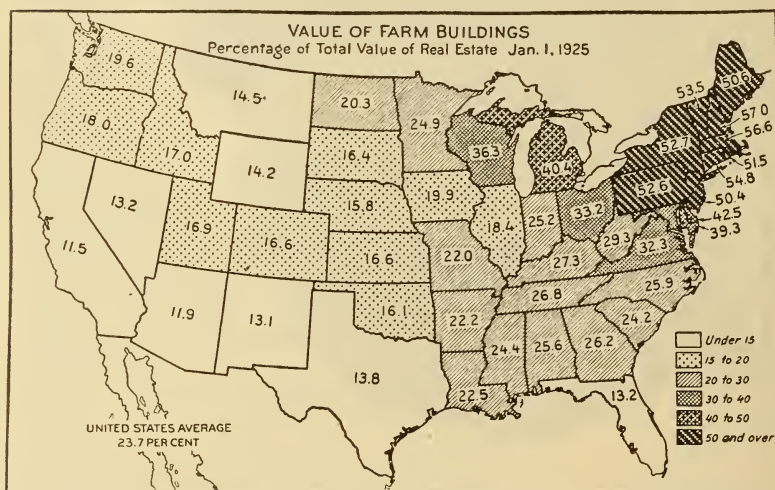


FIGURE 267.—Farm-building valuations, as a rule, decreased much less than land values from 1920 to 1925, and in some States actually increased; consequently farm buildings constitute a higher proportion of the total value of the real estate in 1925 than in 1920. In nine of the Northeastern States the building values reported reached 50 per cent or more of the total value of farm real estate. The lowest proportion was in California, which showed 11.5 per cent. More buildings, larger buildings, and more expensive types of construction than would be built to-day are important in explaining the high percentages in the Northeastern States.



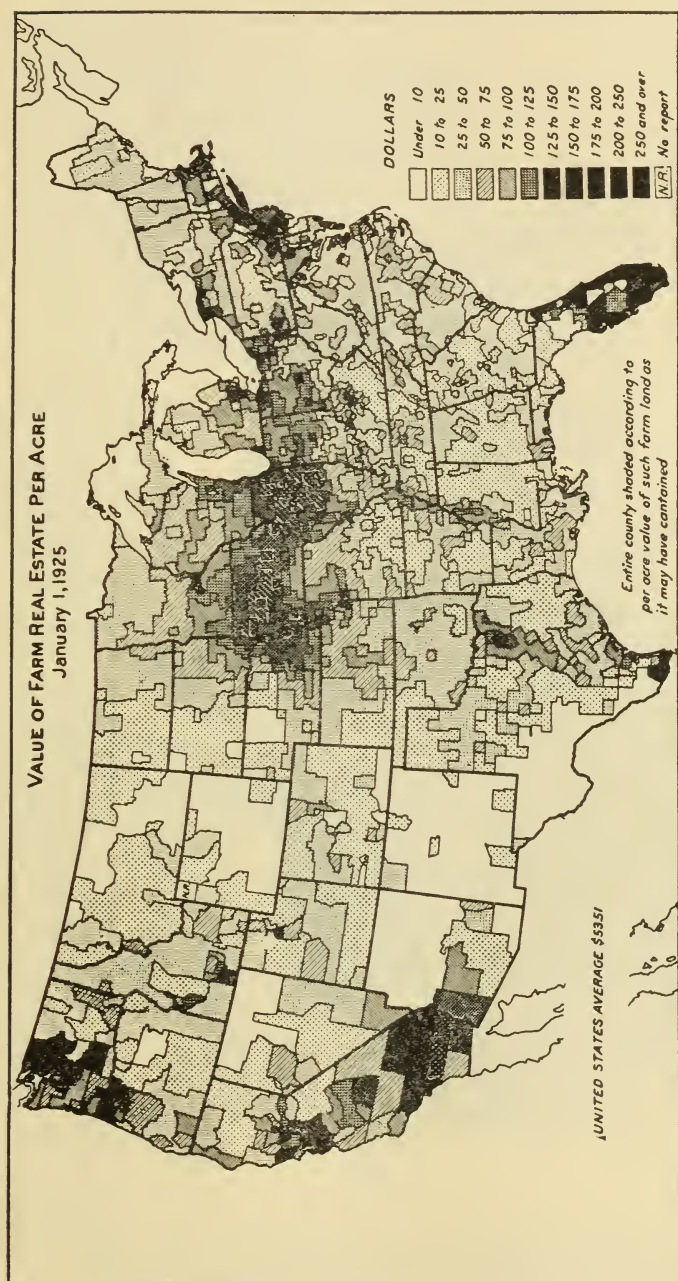


FIGURE 298.—The Corn Belt, California, and certain States on the Atlantic coast are conspicuous for their high average value per acre of farm real estate. There is great variation within practically every State, many of the Western States having small districts of highly valued irrigated land. Note the low values per acre of several of the Rocky Mountain States in comparison with high average value of farms for the same States as indicated in Figure 265. In the Cotton Belt, on the other hand, the value, both per acre and per farm, is small, but it should be recalled that many of the farms, as classified by the census, are the small holdings of croppers on plantations.



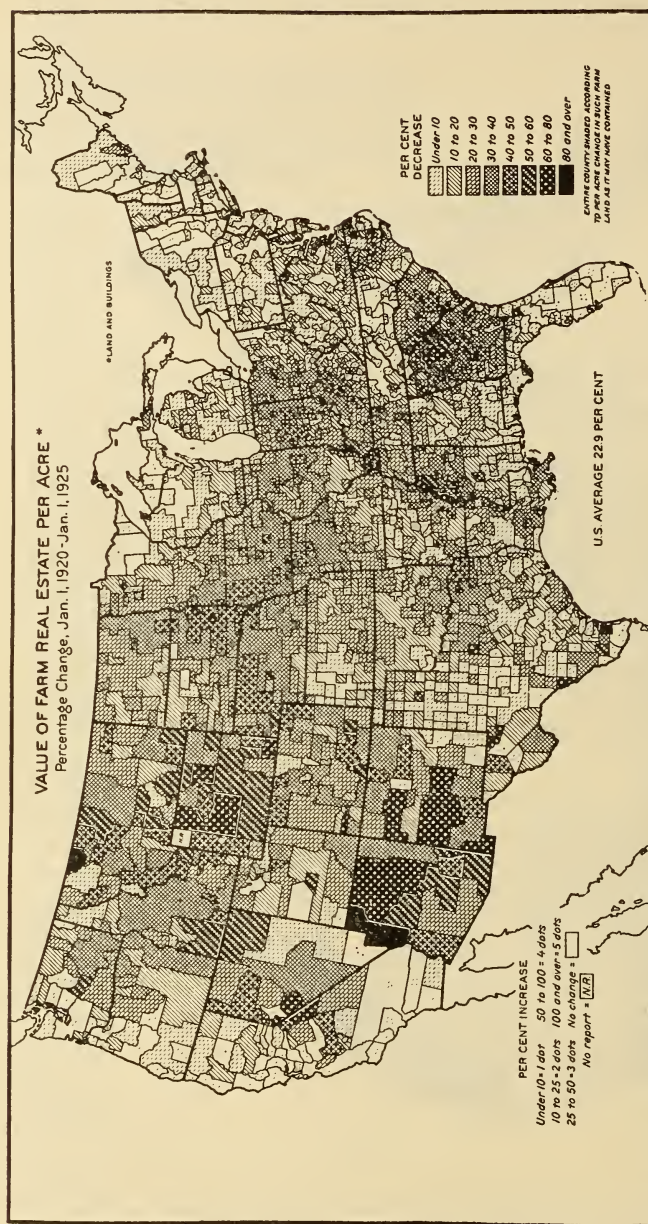


FIGURE 269.—The changes in values per acre of farm real estate are frequently exaggerated, because of large changes in the area included in farms, especially in the States of the Southeast, the Northeast, and the far West. Urban and industrial influences account for the increases shown in some counties. The numerous increases recorded in Florida apparently are attributable largely to the boom, in western Kansas to the extension of grain production into the grazing area, in western Texas to the rapid extension of cotton culture, and in southern Texas to local agricultural development. In general, values declined least in the hay and dairy region and most in the Corn Belt and Rocky Mountain States. Exceptionally severe declines, however, took place in Georgia and South Carolina, owing largely to excessive boll-weevil damage.

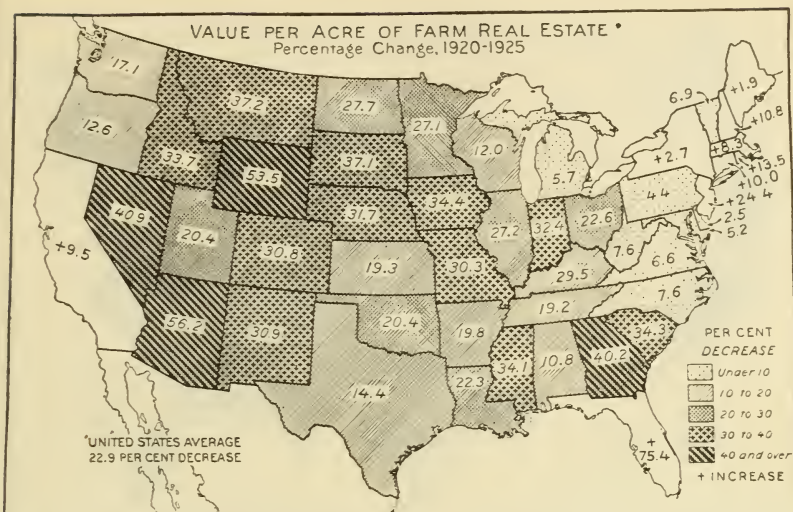


FIGURE 270.—Farm real-estate values in Florida and the States of the Northeast and the Pacific coast were least affected by the general decline from 1920 to 1925, and in several States increased materially. Values in the Corn Belt and spring-wheat region generally fell more sharply than in the Cotton Belt, except in Mississippi, Georgia, and South Carolina, where severe boll-weevil damage caused heavy loss. The sharp decreases indicated in certain of the Rocky Mountain States are probably exaggerated because of additions to the enumerated farm acreage of large amounts of very low-value land not included in the census of 1920, which greatly reduced the State average values per acre

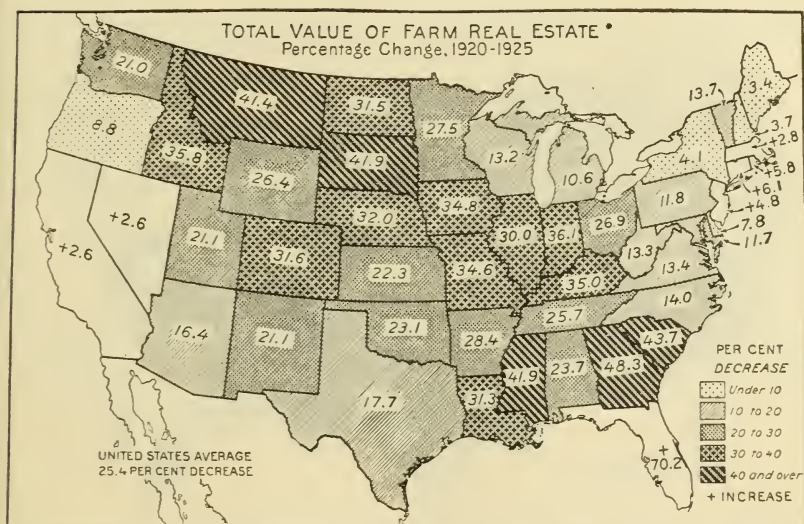


FIGURE 271.—Comparison with Figure 270 shows that changes in the total farm acreage reported in 1920 and 1925 must be taken into account when considering the changes in real estate values. Not only in several Rocky Mountain States were large amounts of low-value land included in farms in 1925 that were not included in 1920, but also in States of the Southeast and Northeast less land was reported. As a rule, however, the same general regional tendencies are shown as in Figure 270. For the entire United States the decrease in the total value of farm real estate was 25 per cent



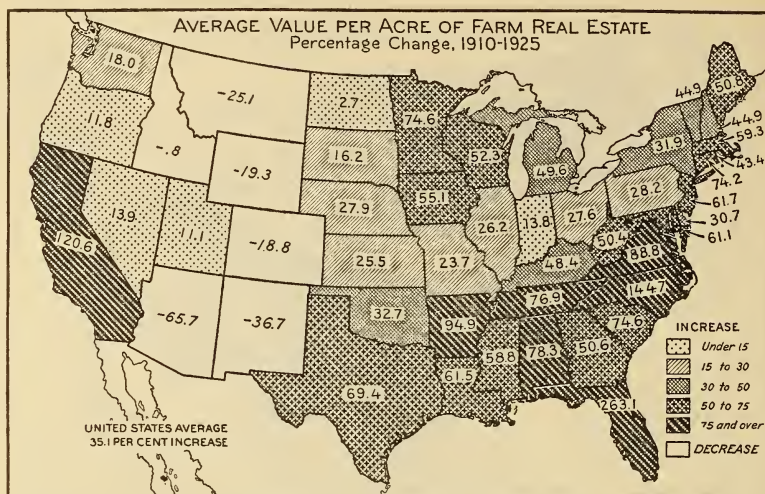


FIGURE 272.—The Rocky Mountain States, except Nevada and Utah, exhibit a reduction in value per acre from 1910 to 1925, and as a group the decrease averages 25 per cent. The accompanying increase in acreage was 121 per cent. This increase, consisting largely of lower-grade land, helps to explain an apparent trend in value so different from that elsewhere in the United States. The South Atlantic and east South Central States exhibit the greatest relative increase in acre value, 65 per cent on the average, but this is owing in part to a notable decrease in acreage of farm land, except in Florida. For the United States the increase was 35 per cent, which is less than the increase in the prices of the things farmers buy

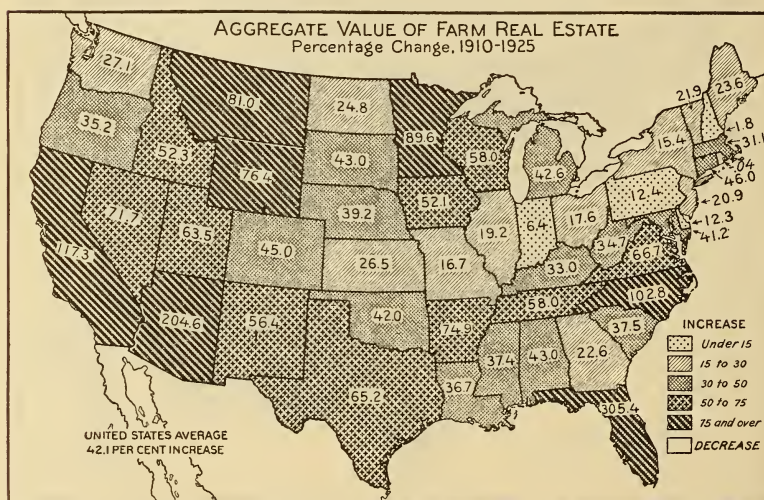


FIGURE 273.—Total value of farm real estate increased 42.1 per cent between 1910 and 1925. Only in Rhode Island was there a decrease, while increases as high as 305 per cent, (Florida), 205 per cent (New Mexico), and 117 per cent (California) are indicated. In New Mexico, Montana, and Wyoming, the acreage of farm land more than doubled and in Arizona the increase was ninefold; but in Florida the increase was slight, and in California a slight decrease occurred. For the United States the increase in acreage of farm land was 15 per cent (mostly low-grade land), and the increase in value of land and buildings was 42 per cent



**FARM REAL ESTATE: INDEX NUMBERS OF AVERAGE VALUE PER ACRE**  
Census Divisions, 1920-1929

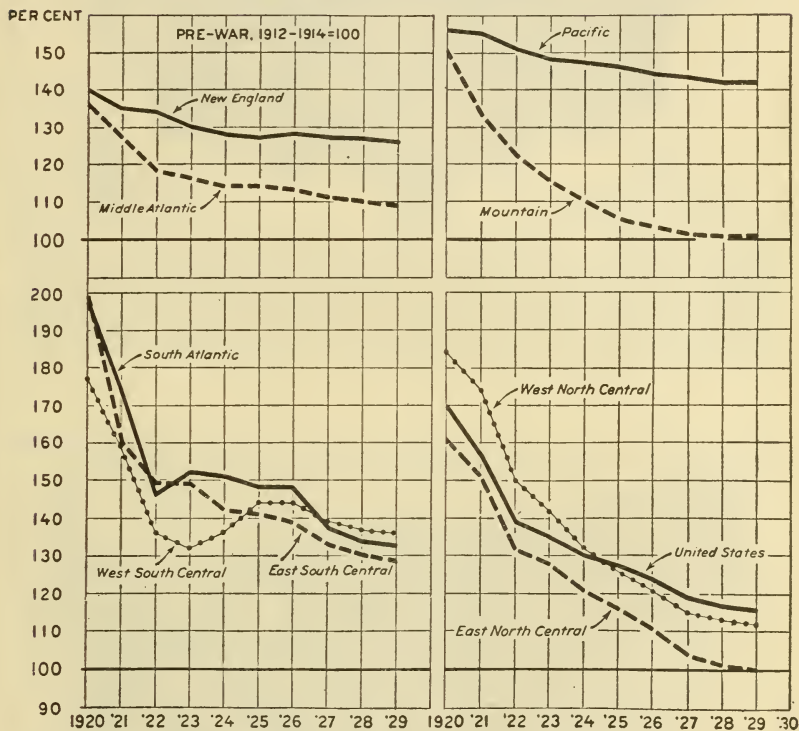


FIGURE 274.—Farm real-estate values have shown great regional variation in movement both in the extent of the rise during the inflation period and in the extent and character of the decline since the peak of 1920. The rate of decline has grown progressively less in recent years. Although the decreases in the last year were uniformly very small, there was no assurance that the bottom had been fully reached in all States. Average acre values have returned to pre-war levels in the Mountain and east north-central divisions. The above figures make no allowance for the greatly decreased purchasing power of the dollar

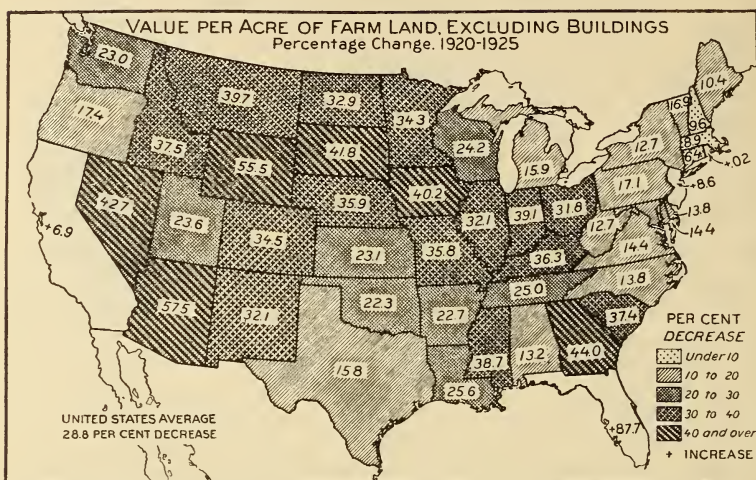


FIGURE 275.—This map should be compared with Figure 270, which does not exclude buildings. In general, both maps display evidence of similar trends, this one displaying as a rule the greatest percentage decreases, especially in the Eastern States, where buildings represent a rather high percentage of total value of farms. Changes in farming area obscure somewhat the true course of land values, as explained for Figure 270, tending to lower the per acre value in the Great Plains region in 1925 and to raise it in the South and East.

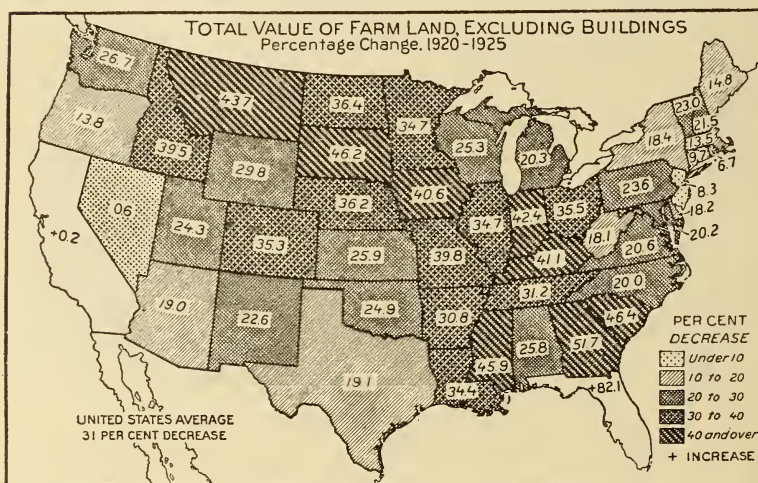


FIGURE 276.—The decrease in total value of farm land, excluding buildings, is a combination in most States of a decrease in acre value with a slight shrinkage in the number of acres. On the whole, however, the map provides a fair picture of the percentage decline in value of farm land. The greatest declines (over 40 per cent) occurred in Georgia, South Carolina, Kentucky, Indiana, Iowa, South Dakota, and Montana, the least in southern New England and New Jersey; an increase is indicated in Florida and a very slight increase in California.

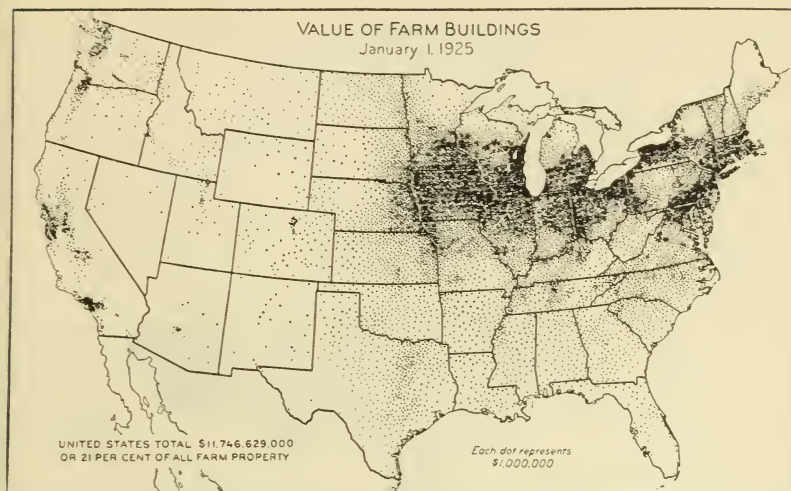


FIGURE 277.—The geographic distribution of value of farm buildings corresponds in general to that of all farm property, except that the value of buildings is relatively high in the Northeastern States, including Maryland, and in the Lakes States. In New England, New York, New Jersey, and Pennsylvania the value of the farm buildings exceeded the value of the land in 1925. In Illinois and Iowa, on the other hand, the value of the buildings was less than one-fourth the value of the land and in California less than one-seventh. In a number of counties in southern New England, New York, New Jersey, Pennsylvania, Wisconsin, Iowa, and Illinois, the acreage value of the buildings exceeds \$5,000 per farm

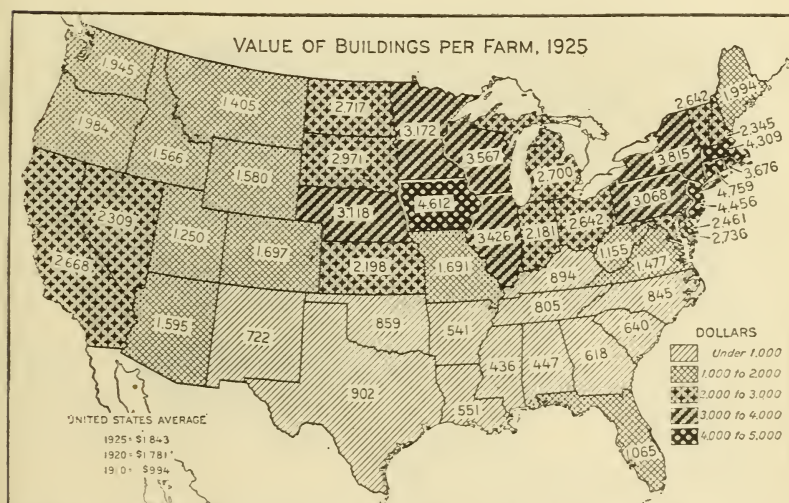


FIGURE 278.—In Massachusetts, Connecticut, and New Jersey, and in parts of New York and Pennsylvania the value of buildings averaged over \$4,000 per farm in 1925, considerably exceeding the value of the land. In Iowa the average farm had over \$4,000 worth of buildings. In the other Northern States and in the Pacific Coast States the value of buildings ranged from about \$2,000 to \$4,000 per farm. The low values in the Cotton Belt are owing in part to the large number of negro shanties, which offset the values of the buildings on the landowners' farms. In many counties of the South the average value of the buildings on the portions of plantations operated by wage hands is as large as on farms in the North



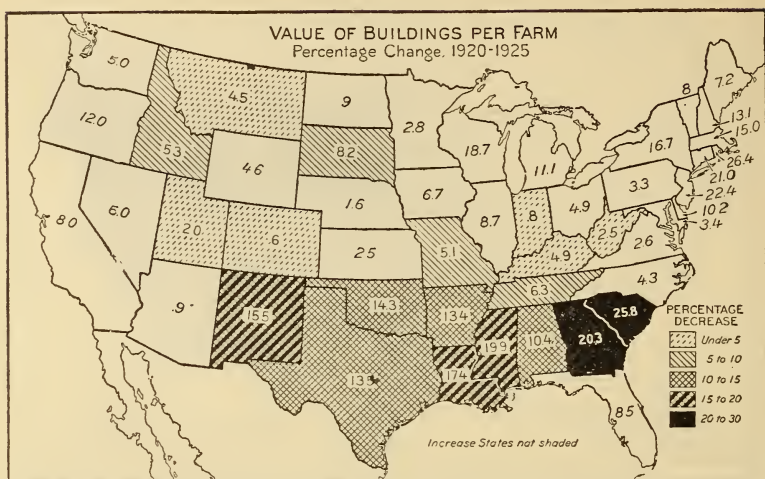


FIGURE 279.—The change in farm-building valuations between 1920 and 1925 varied appreciably from State to State. In contrast with an indicated decline in land values in most States, the average value of farm buildings per acre increased in a number of States, and where decreases occurred they were usually less than were the corresponding decreases in the value of the real estate as a whole. In every Southern State, except North Carolina and Virginia, a decrease in value of buildings per farm is indicated, whereas every State in the hay and dairy region reported an increase. For the Pacific Coast States and most of the Corn Belt States an increase is indicated.

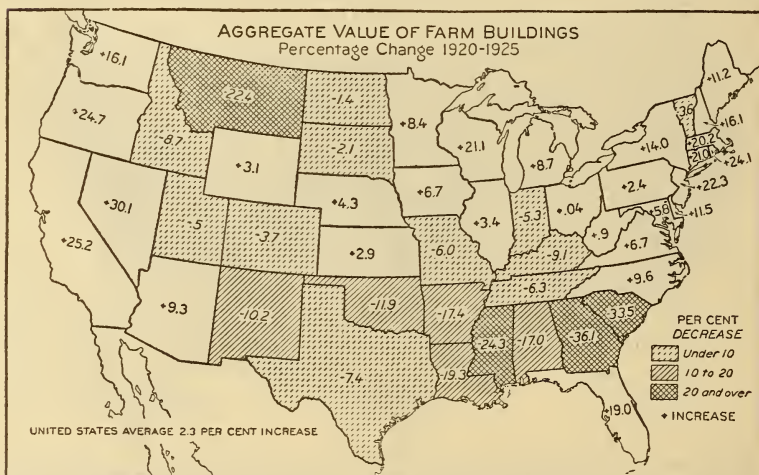


FIGURE 280.—Although farm real-estate values declined in most States from 1920 to 1925, building values as a rule declined much less and in a number of States increased. This development appears in part to be owing to a general increase in the replacement costs of buildings during the five years, possibly to unduly low building valuations reported in 1920 which failed to reflect the full increase in replacement costs of the war period, to buildings completed after 1920, and to greater withdrawals of land than of buildings from the area in farms in sections where decreases took place.

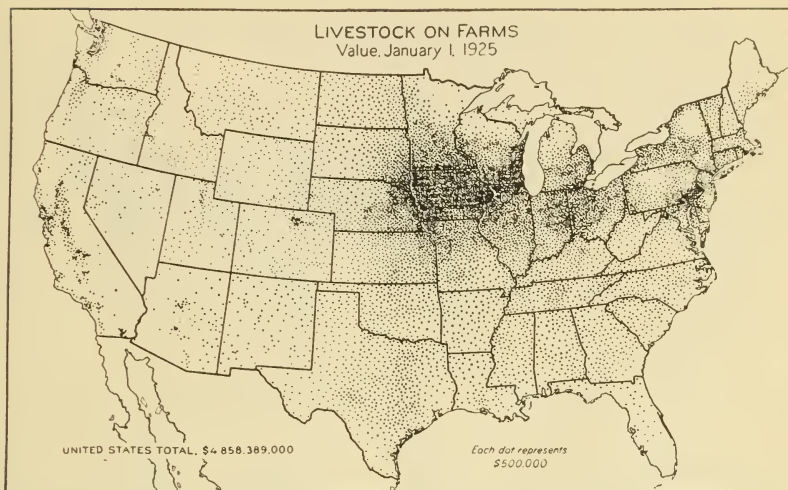


FIGURE 281.—The Corn Belt contains between a fourth and a third of the value of all livestock in the United States, or more than the entire western half of the country, and the value of the livestock in Iowa is greater than in all the Cotton Belt, excluding Texas and Oklahoma. There is also dense distribution in southern Wisconsin and Minnesota, in Michigan, New York, and southeastern Pennsylvania. In these districts dairying is very important. Livestock constitutes about 8 per cent of the total farm investment in the Corn Belt, about 9 per cent in the Cotton Belt, 17 per cent in the grazing and irrigated-crops region, and 8.5 per cent for the country as a whole

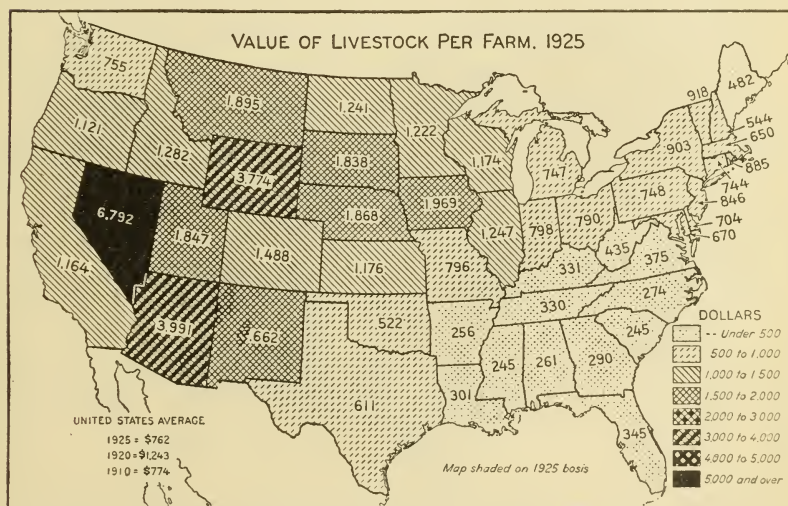


FIGURE 282.—In value of livestock per farm the grazing and irrigated-crops region leads, with an average of about \$2,000 per farm, while the average in the Corn Belt is only \$1,200, in the Cotton Belt \$360, and in the entire United States \$760. Nevada, with an average of about \$7,000, Arizona with \$4,000, Wyoming with \$3,775, have the highest values among the States. In these States there are many cattle and sheep ranches and fewer crop farms than in the other Western States. The lowest average value per farm is in South Carolina, where most of the farms grow cotton and work stock are worth more than all other livestock. Moreover, many of the farms in South Carolina and other States of the "old South" are small cropper holdings on plantations

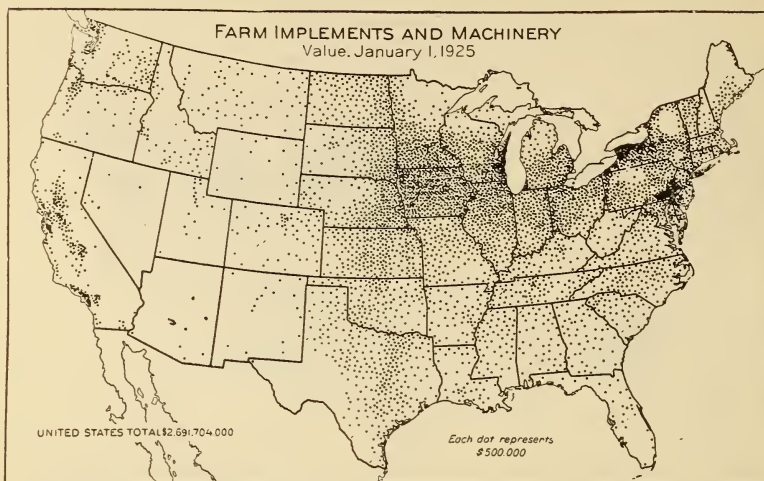


FIGURE 283.—About one-fourth of the value of farm implements and machinery in the United States is in the Corn Belt and another fourth is in the hay and dairy region. The districts of greatest concentration of value, however, are southeastern Pennsylvania, western New York, and the several valleys of California. In the Cotton Belt, on the other hand, particularly the eastern and central portions, low-priced labor and the necessity of picking cotton by hand have tended to discourage the use of machinery

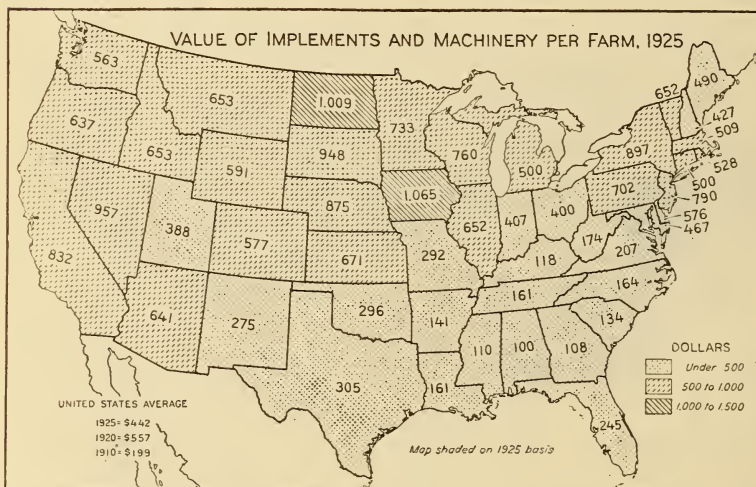


FIGURE 284.—Iowa and North Dakota lead in value of implements and machinery per farm—over \$1,000 in 1925. In Nevada, South Dakota, New York, Nebraska, and California the values exceed \$800. On the other hand, in the eastern Corn Belt (Ohio and Indiana), where the farms are smaller than in the western Corn Belt (largely because of the labor of clearing the forest during settlement), the value of machinery per farm is only about \$400, and in the eastern and central Cotton Belt the average value is only \$100 to \$150. There is remarkable uniformity in the proportion of all farm property represented by machinery, practically all areas averaging close to 4 or 5 per cent, except the hay and dairy region, where it is nearly 8 per cent



## FARM-MORTGAGE DEBT

The accompanying charts of farm-mortgage debt indicate the nature and extent of agriculture's fixed obligations which are secured by farm land and buildings. The most noteworthy feature of farm-mortgage finance has been the marked increase from an approximate total of \$3,320,000,000 in 1910 to about \$9,468,000,000 in 1928. The great rise in prices which culminated in 1920 was an important factor in this increase, but mortgage debt continued to increase until 1928, despite a continuous decline in farm values in nearly all parts of the United States.

The total farm-mortgage debt in 1920 amounted to 136 per cent more than in 1910; the debt in 1925 was 19 per cent above 1920, and the total in 1928 was about 1 per cent over 1925. All States had increases from 1910 to 1920, with largest additions in the western regions. Between 1920 and 1925 three-quarters of the States showed increases and 12 showed declines; in 1928 reductions in debt appeared in 19 States, nearly all in the Rocky Mountain, west North Central, and North Atlantic groups of States. (Figs. 293-295.)

The recession of land values resulted in higher ratios of debt to value, so that a considerable part of the farms reporting debt for 1925 and 1928 had narrowing margins of equity above the debt. (Fig. 292.) Farms with mortgages equal to or nearly equal to their value show a general conformance to the number of foreclosures and forced sales in the same area.

Distribution of the 1928 debt by census divisions shows 43 per cent in the west North Central States and 21 per cent in the east North Central States. (Fig. 293.) Principally because of relative capital needs among farms of different tenure, the percentage of full-owner farms mortgaged is larger than for tenant-operated farms, save in parts of the South; but in all cases it is exceeded by the percentage of part-owner farms mortgaged. (Fig. 287.)

The value of agricultural land is closely associated with greater borrowing with the land as security. Not only is the total mortgage debt greatest where total farm-land value is greatest, but the average amount of debt per farm and per acre is greatest where these units have higher value. (Figs. 288-291.)

During the decade following the World War important shifts occurred in the distribution of farm mortgages among holding agencies. Holdings of individuals declined sharply because of the transfer to others or repossession of land sold. Holdings of banks at first increased through refunding of short-term debt but later entered upon the decline which has since continued. Meanwhile mortgages from principal agencies continued steadily upward to 1928, when life-insurance companies held 22.9 per cent of the total; Federal land banks, 12.1; joint-stock land banks, 7; commercial banks, 10.8; mortgage companies, 10.4; retired farmers, 10.6; active farmers, 3.6; other individuals, 15.4; other agencies, 7.2 per cent. (Fig. 297.) By 1928 the decline in land values and reduction of security margins of loans had resulted in many foreclosures and led to a decrease in total mortgage holdings of the principal lending agencies during 1928 and an indicated decline in the total volume of farm-mortgage debt of the country.

D. L. WICKENS.

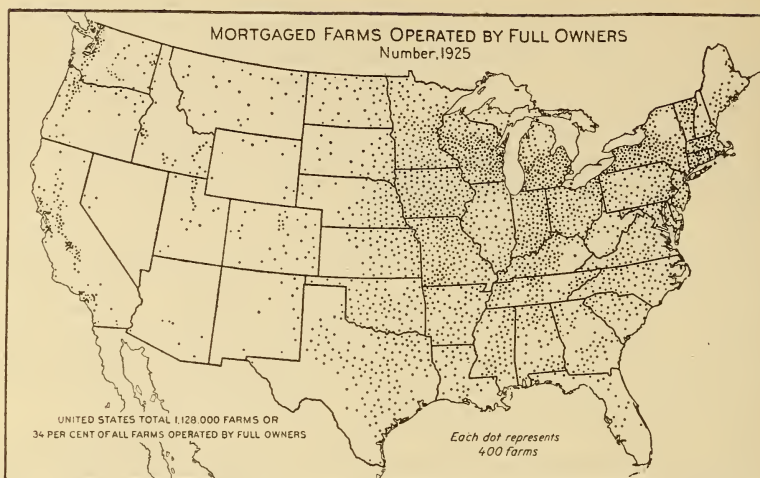


FIGURE 285.—The census reports mortgages only on farms operated by owners. The number of such mortgaged farms is greatest in the North Atlantic and Lakes States, Ohio, Indiana, Iowa, and Missouri, where owner farms are numerous. The number is notably less in central Illinois, where tenancy is common. The small number of mortgaged farms shown in the western half of the United States, outside the valleys of California, Oregon, and Washington, is owing to the small number of farms in this mostly arid or mountainous region. However, the small number shown in the South Atlantic States indicates a smaller proportion of farms mortgaged. (Fig. 286)

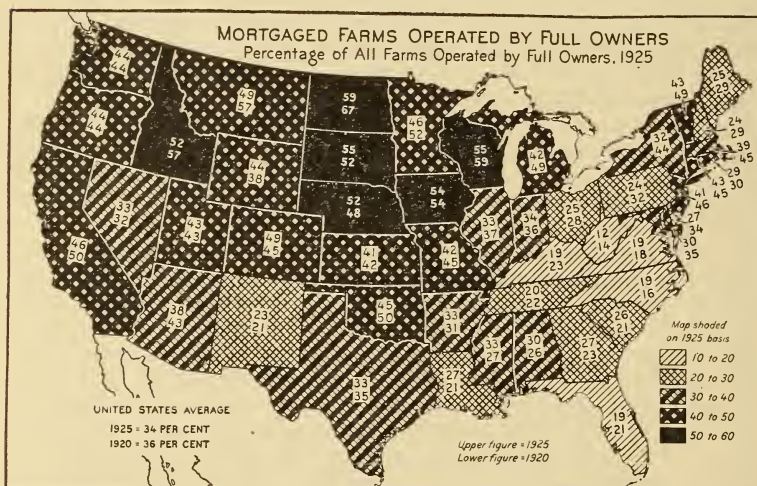


FIGURE 286.—In 1925 over half the farms operated by their owners were mortgaged in Wisconsin, Iowa, Nebraska, the Dakotas, and Idaho, and almost half in Minnesota, Montana, Colorado, and California. On the other hand, less than a fifth of the farms in West Virginia, Kentucky, Virginia, North Carolina, and Florida reported mortgages. The proportion of farms mortgaged increased between 1920 and 1925 in the eastern Cotton Belt, and in Colorado, Nebraska, and South Dakota, but decreased notably in the North Atlantic States and less notably in the eastern Corn Belt and Lakes States, in North Dakota, Montana, Idaho, and California. Much of the decline in the Northwestern States was due to the repossession of titles by former owners who had sold land and taken mortgages in payment.

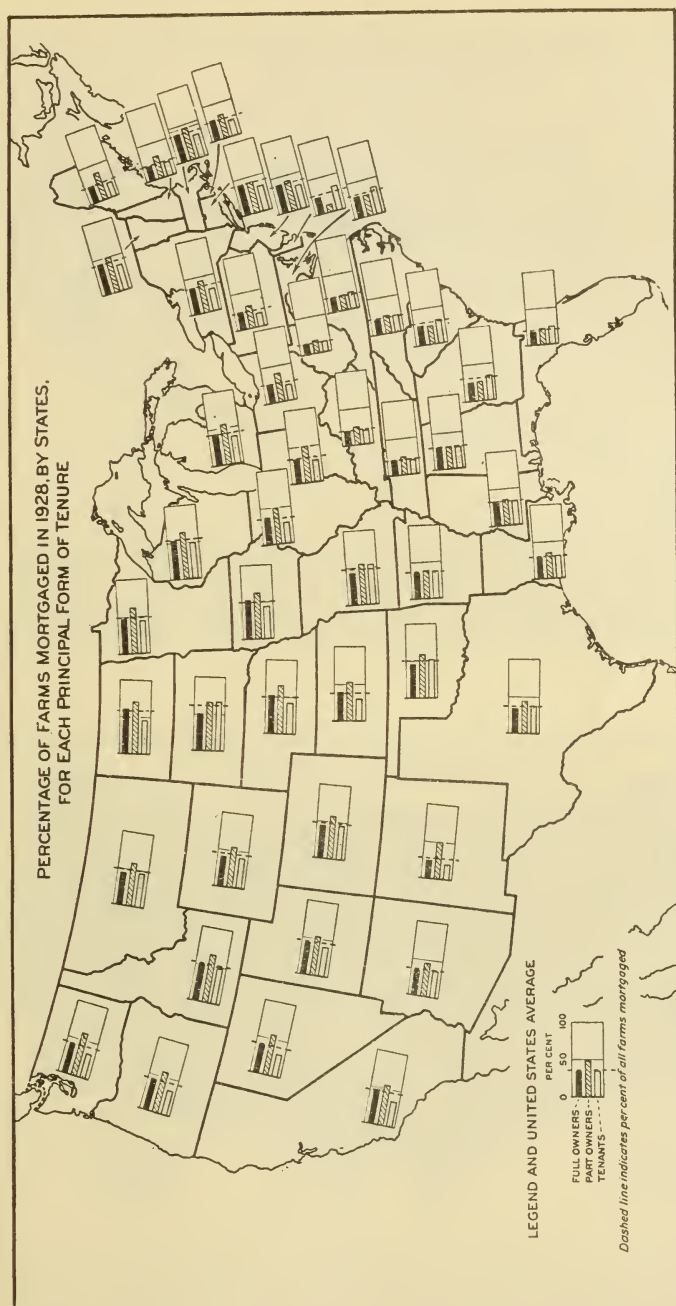


FIGURE 267.—Part owners, that is, farmers owning only a part of the land they operate, have mortgages on their farms far more often than do farmers of other tenures. This is due primarily to the fact that their larger operations require more capital. Fully owned farms operated by their owners are mortgaged in more than one-third of all cases. This is slightly more frequent than in the case of tenant-operated farms. In the North Atlantic States, however, tenant farms are much less frequently mortgaged than are owner farms. In a number of the Southern States farms operated by tenants have mortgages in a greater proportion of all cases than do owner farms. (Based on studies of 22,352 farms by the Division of Agricultural Finance, Bureau of Agricultural Economics)



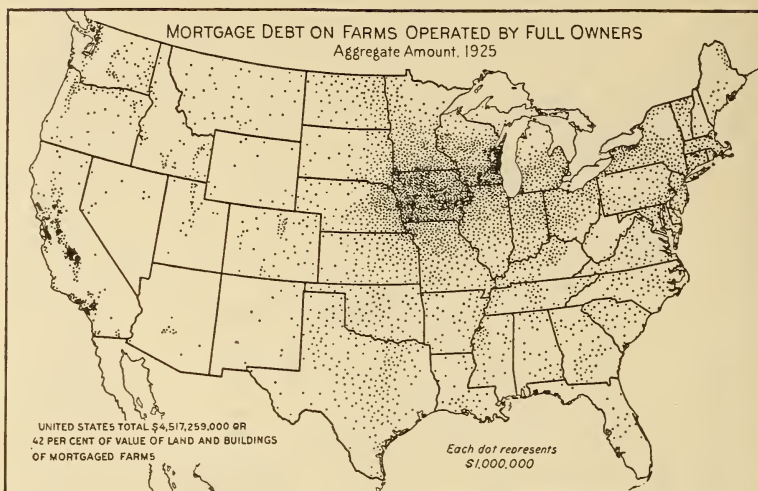


FIGURE 288.—The amount of mortgage debt is more concentrated in Iowa than is the number of farms mortgaged, owing to much greater debt per farm. (Fig. 289.) Mortgage debt is greatest where farming is most highly commercialized and most progressive—in the region lying between Lake Michigan and the semiarid Plains, in California, and in western New York. On the other hand, although cotton is a commercial crop, the amount of mortgage debt in the Southern States is relatively small. Nevertheless, the ratio of debt to value of property mortgaged is as high in several Southern States as in the North. (Fig. 296)

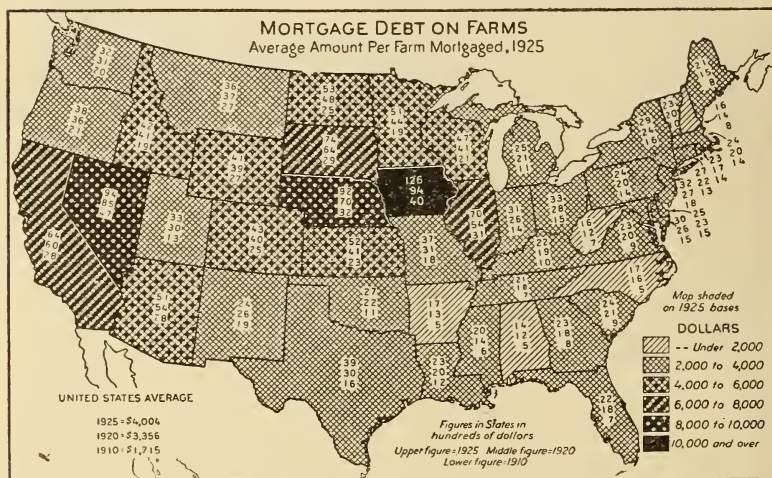


FIGURE 289.—In Iowa the average debt per farm mortgaged was about \$4,000 in 1910, nearly \$9,400 in 1926, and nearly \$12,600 in 1925. In Nebraska the rate of increase has been almost as great, and in almost every State the average debt per farm in 1925 was greater than in 1920. The average value of farms meanwhile decreased almost everywhere, resulting in foreclosures on many mortgaged farms and a reduction of the loans renewed on many others. This map should be compared with that showing ratio of debt to value of farm. (Fig. 296)

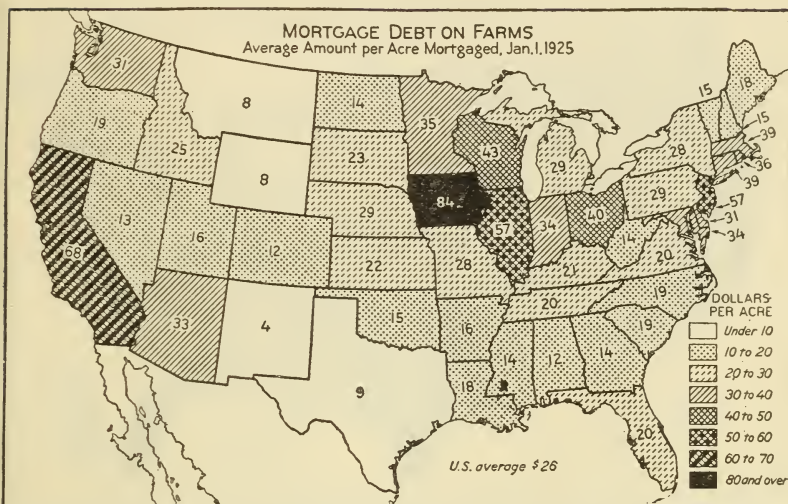


FIGURE 290.—Iowa stands first among the States in debt per acre mortgaged, as it does also in indebtedness per farm and in ratio of debt to value of farm. California stands second in mortgaged debt per acre and Illinois third. In most of the States the average mortgage debt is less than \$30 per acre, and in the Cotton Belt and many Western States it is less than \$20 per acre. However, as the value of the land is low in these States, the ratio of debt to value is as high as in the Northern States. The average mortgage debt per acre for the United States was \$26 in 1925

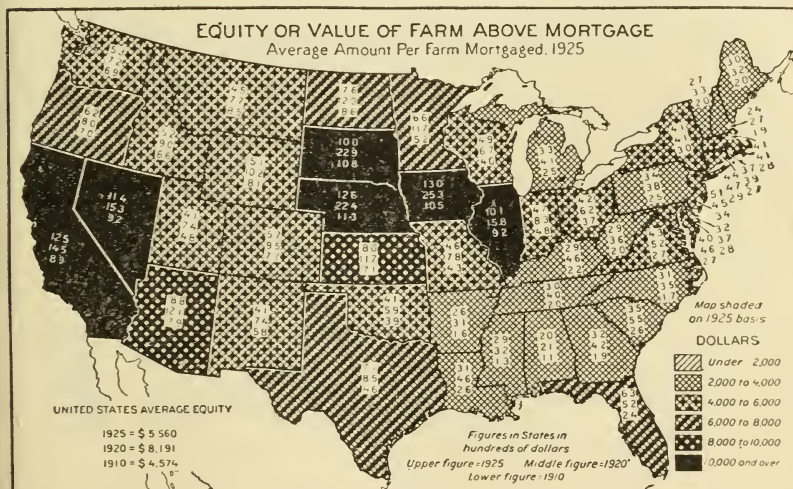


FIGURE 291.—The average value of mortgaged farms above the amount of the mortgage was \$12,300 less in Iowa in 1925 than in 1920, but was \$2,500 more than in 1910. In every State except New Jersey and Florida this equity, or excess of value of farm above mortgage, decreased between 1920 and 1925, but in all States, except Indiana, New Mexico, Colorado, the Dakotas, and six other Northwestern States, it was greater in 1925 than in 1910. However, when the diminished purchasing power of the dollar is taken into account, it would appear that in most States the real value of the farmer's equity in his farm has decreased since 1910



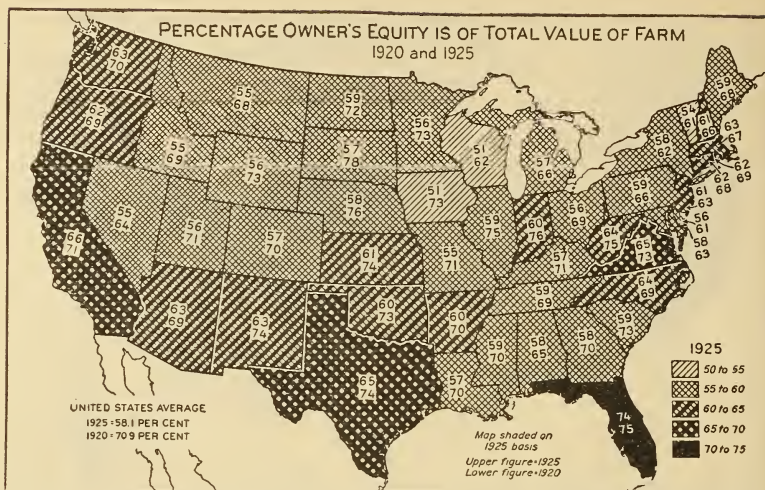


FIGURE 292.—The proportion of the value in mortgaged farms which belongs to the owner, that is, the ratio of the excess above the mortgage to the value of the farm, decreased in every State between 1920 and 1925. This is owing to the fact that the value of farm land declined nearly everywhere, while the amount of the mortgage increased in most cases and remained nearly constant in others. In 1925 the Iowa and Wisconsin farmers who had mortgages owned only about half their farms, so to speak, and in no State, except Florida and Massachusetts, did they own more than two-thirds. In Florida the farmer's equity has undoubtedly decreased greatly since 1925.

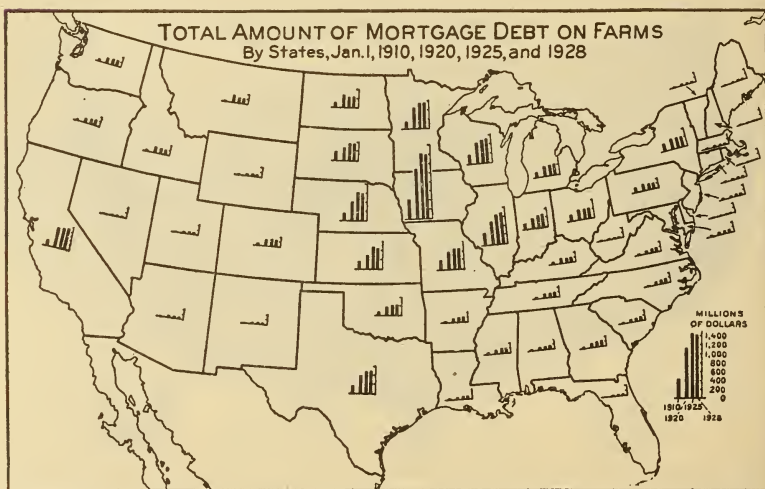


FIGURE 293.—The marked increase in mortgage debt between 1910 and 1920 was general throughout the country, being least evident in the North Atlantic States. Further increases occurred in most of the States by 1925, although there were declines in several States, most of which were in the West. By 1928 the number of States showing declines had doubled, most of the additional declines appearing also in the West, with a tendency to move eastward across the Corn Belt. (Based on estimates by the Division of Agricultural Finance, Bureau of Agricultural Economics)



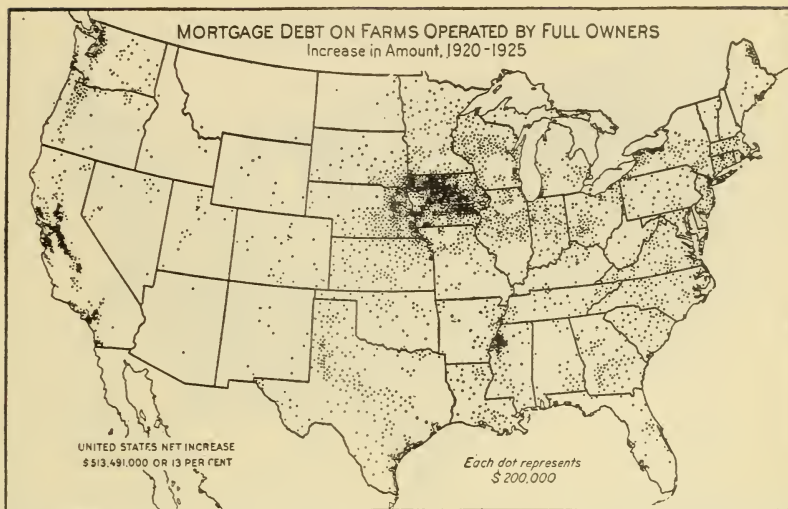


FIGURE 294.—In Iowa the mortgage debt on owner-operated farms increased \$135,000,000, or 27.7 per cent, between 1920 and 1925, despite a decrease of over a third in the value of farm land and buildings. Part of this added burden is assignable to purchase of farms at high prices during the war and early post-war years and to the refunding of short-term obligations incurred during the same period, while part of the increase is due to low prices of farm products in recent years. In California also mortgage debt increased greatly, and smaller areas of increase will be noted in the Yazoo-Mississippi Delta and in northwestern New York. These are all areas of productive soils and high land values

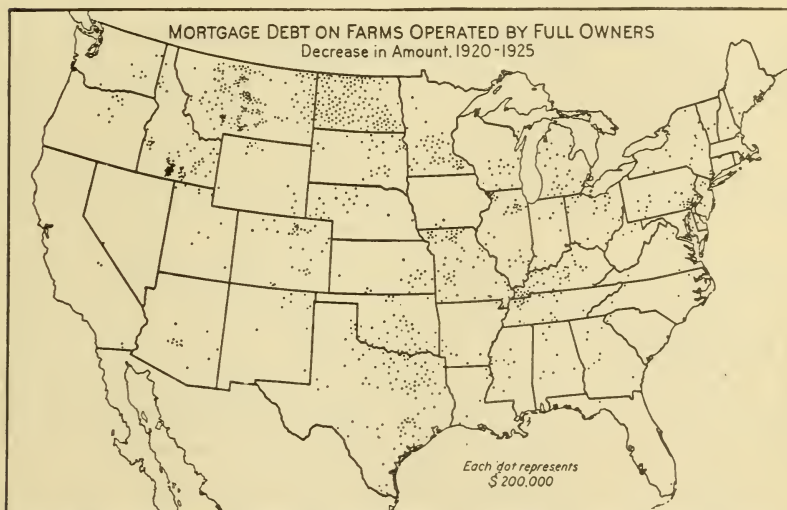


FIGURE 295.—A decrease in mortgage debt between 1920 and 1925 occurred in the spring-wheat region and in central Montana and Idaho. These were areas of severe and prolonged drought during the years 1917 to 1920. After 1920 a marked decline of land prices occurred, and in the case of many farms the indebtedness was written off through foreclosures and cancelation of land contracts. Local decreases in mortgage debt will be noted in eastern Texas, Oklahoma, Missouri, Kentucky, Tennessee, the Lakes States, Ohio, and Pennsylvania. The areas of decrease in mortgage debt, however, are much smaller than the areas of increase, and the decrease in these areas is small compared with the heavy increases shown in other areas. (Fig. 294)

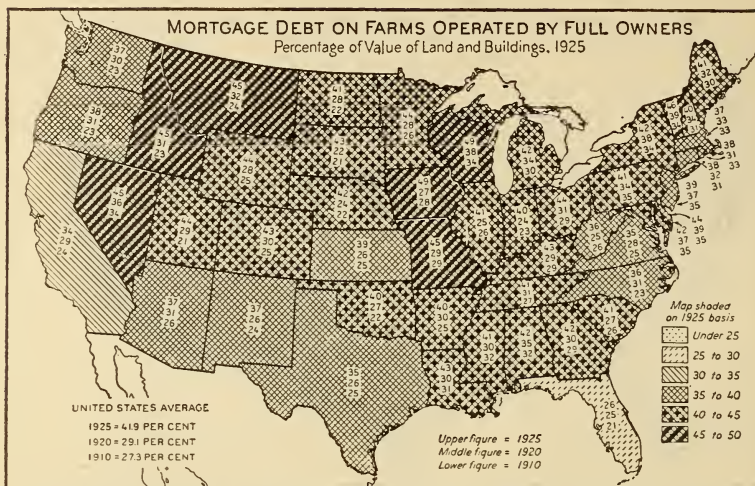


FIGURE 296.—Although the percentage of farms mortgaged decreased in many States between 1920 and 1925, the ratio of the debt to the value of farm property mortgaged increased in every State, in many States very greatly. This was owing principally to the decline in value of farm land and in part to an increase in the amount of mortgage debt. In Iowa and Wisconsin the ratio of debt to value was 49 per cent in 1925, a rise in Iowa from 27 per cent in 1920. Meanwhile the value of all farm land and buildings in Iowa had decreased from \$7,601,772,000 to \$4,594,446,000. In most of the States the ratio of debt to value exceeds 40 per cent, but along the eastern, southern, and western margins of the United States the ratio is, in general, a little lower

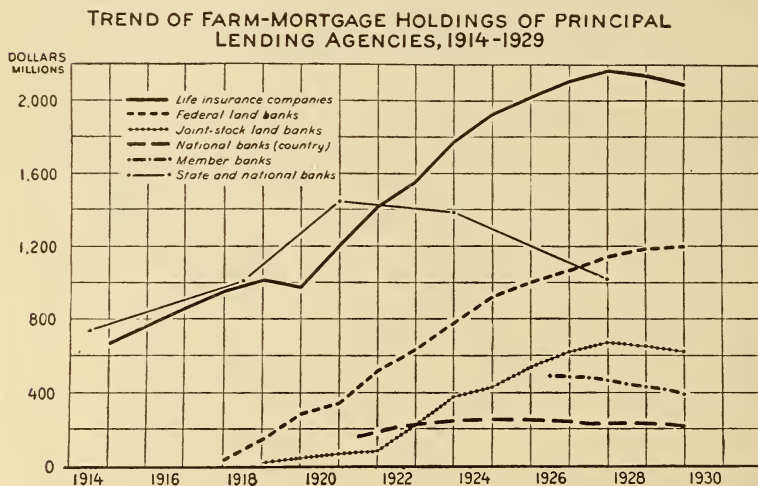


FIGURE 297.—During the years of rising prices before 1920 all agencies participated in the increased lending on farm-land security. Commercial banks were the first of the important lending institutions to show a decline in mortgages held. Loans held by insurance companies and the Federal and joint-stock land banks continued to increase for a number of years, partly because of loans taken over from commercial banks and individuals. In 1927 the holdings of joint-stock land banks began a decline and in 1928 insurance-company holdings also showed a reduction. (Based on studies by the Division of Agriculture Finance, Bureau of Agriculture Economics)

## FARM TAXATION

The average farm real-estate tax per acre in 1928 was 146 per cent higher than in 1913. The increase was especially rapid from 1917 to 1923, partly because of higher prices in general, but primarily because of increased expenditures for schools and roads. To illustrate, of the total increase in taxes on farm real estate in Kansas from 1916 to 1923, 49 per cent was due to additional expenditures for education and 25 per cent to new outlays for roads. These functions respectively accounted for 41 per cent and 20 per cent of the per capita increase in expenditures by State governments of all the States from 1915 to 1927.

In the 5-year period, 1924-1928, property taxes on a sample of over 14,000 owner-operated farms took 20 per cent of the net returns before deduction of taxes. Net returns in this case include not only cash sales minus expenses, but also an estimated value for food obtained by the family direct from the farm, and any increase in inventory values of personal property from the beginning to the end of the year. The relation of taxes to net returns varied considerably among the various sections of the country and from year to year. (Figs. 302 and 303.) It should be borne in mind that the relation of taxes to net returns in farming involve all the difficulties inherent in calculating net farm returns.

The relation of taxes to net rent of farm property may be arrived at with definiteness, since tax levies are compared with specific considerations in renting land. Taxes took approximately 30 per cent of the net rent of farm lands in selected States in recent years (fig. 304), the figures varying from 58 per cent in Michigan to 18 per cent in Arkansas. Wide variations appear among individual farms in each State.

A comparison of taxes with the full value of farm real estate gives a fairly definite idea of the trend of tax levies in relation to land values. In the United States as a whole taxes amounted to 1.43 per cent of the full value of farm real estate in 1928, as compared with 0.68 per cent in 1913.

With respect to the probable course of farm taxes during the next few years the Agricultural Outlook for 1930 (Miscellaneous Publication 73) contained the following comment:

Taxes on farm property in the United States as a whole may be expected to increase for some time, although it appears certain that the rate of increase will be less than the average rate since 1913. Estimated average taxes per acre of farm real estate increased 134 per cent from 1913 to 1924, principally because of increased expenditures for schools and roads. By 1928 taxes per acre had advanced to 146 per cent above the 1913 level. It is most unlikely that there will be a sufficient abatement in the demand for public improvements and services to permit a general reduction in State and local expenditures. Taxes on farm property will not decline and probably will continue to increase unless the several States should (1) provide more effective control over the tendency of expenditures to increase and (2) revise further their systems of taxation so that a substantially greater share of the necessary expenditures would be met by revenues derived from sources other than general property. Past experience indicates that progress along these lines will be slow unless there should develop an unusually strong demand for practical and far-reaching improvements in State and local finance.

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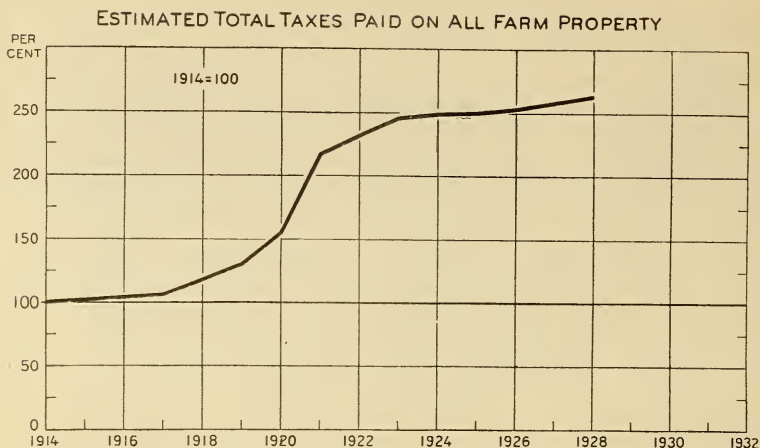


FIGURE 298.—The percentage increase in total taxes on all farm property in the United States from 1914 to 1928 was very great. In 1928 the amount paid in taxes on farm property, measured in dollars, was about two-and-two-thirds times as much as in 1914. It is significant that taxes continued to rise after the beginning of the agricultural depression in 1920, although the rate of increase diminished, especially after 1923. This increase in property taxes is due primarily to increased expenditures for education and for roads, together with extensive reliance on the general property tax, which accounts for approximately four-fifths of all State and local revenue

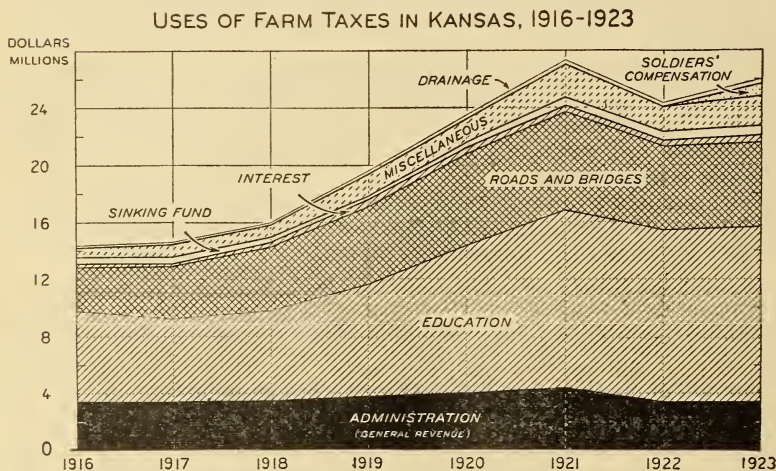


FIGURE 299.—In Kansas, which is probably typical of most States, the increased revenue from taxation of farm property has been spent mostly for schools and roads. Expenditure for general administration, both State and county, did not increase materially between 1916 and 1923, despite the decline in purchasing power of the dollar. The expenditure for education nearly doubled and for roads and bridges more than doubled. Expenditures for interest and sinking fund, both small items in Kansas, increased much less, but miscellaneous expenses trebled. The significant fact is that expenditure for schools and roads almost doubled between 1914 and 1923. This increase is reduced considerably by allowing for the decreasing purchasing power of the dollar

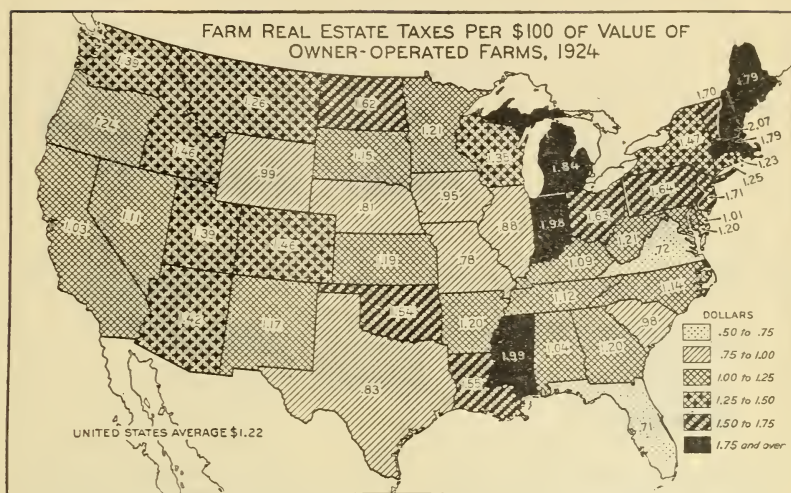


FIGURE 300.—This map of real-estate taxes on each \$100 of value of land and buildings in owner-operated farms in 1924—that is, taxes in percentage of real-estate values—is based upon the 1925 Census of Agriculture. The census instruction to the farmer in answering the question as to value was, "Give the amount for which this farm would sell." It will be noted in the map that in Maine, New Hampshire, Massachusetts, Michigan, Indiana, and Mississippi farm taxes in 1924 amounted to nearly 2 per cent of the value of the farm. In only nine States—four located in the western Corn Belt—were taxes less than 1 per cent

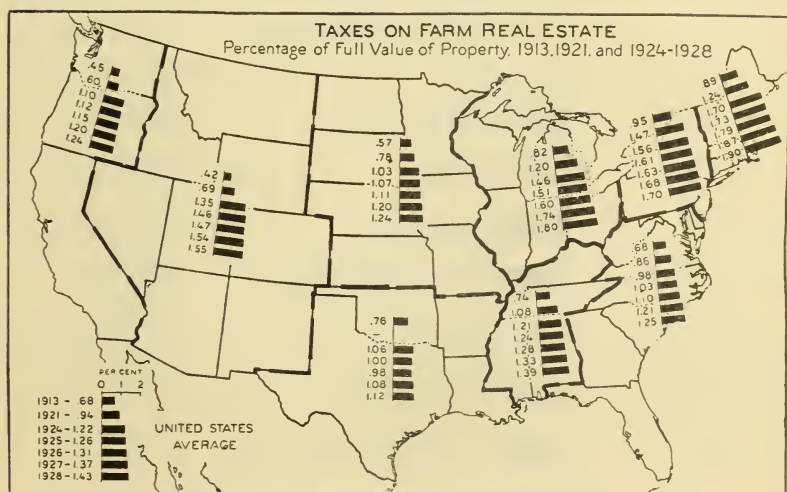


FIGURE 301.—This map compares the estimated true tax rate—that is, the ratio of property taxes to full value as distinguished from assessed value of farm real estate—during the pre-war year 1913 with the post-war years 1921 and 1924-1928. Taxes and land values should not be regarded as altogether independent factors. Although land values are influenced by many factors other than the tax levy, the latter no doubt has exerted an appreciable influence on land values in recent years. It will be noted that in the United States as a whole this ratio increased from about two-thirds of 1 per cent in 1913 to nearly 1 per cent in 1921 and nearly  $1\frac{1}{2}$  per cent in 1928

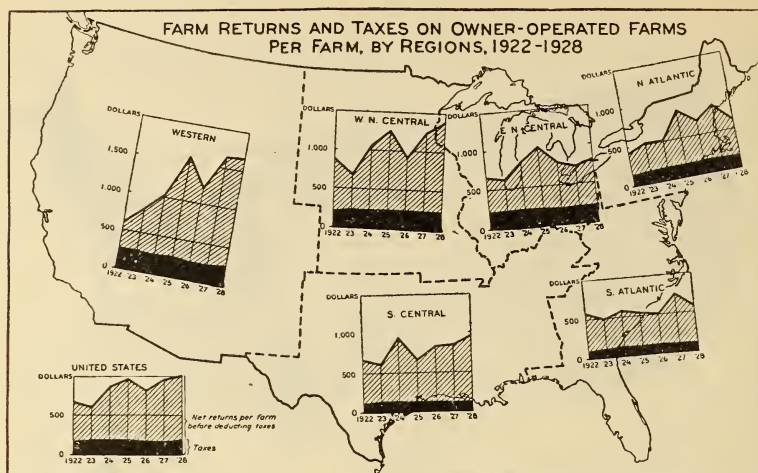


FIGURE 302.—This comparison of farm returns and taxes on owner-operated farms, by regions, 1922-1928, is based upon data on net returns for individual farms compiled by the Division of Farm Management and Costs of the Bureau of Agricultural Economics. A comparison of taxes and farm returns involves all the difficulties inherent in measuring farm income. These difficulties are especially important with respect to any attempt to compare net income of farmers with that of other groups. While farm taxes have increased since 1922, the rate of increase for the United States as a whole has been less than the advance in farm income, owing principally to an increasing farm income in the Western States, the west North Central States, and the south Central States

### TAXES AND NET RETURNS ON OWNER-OPERATED FARMS Average, 1924-1928

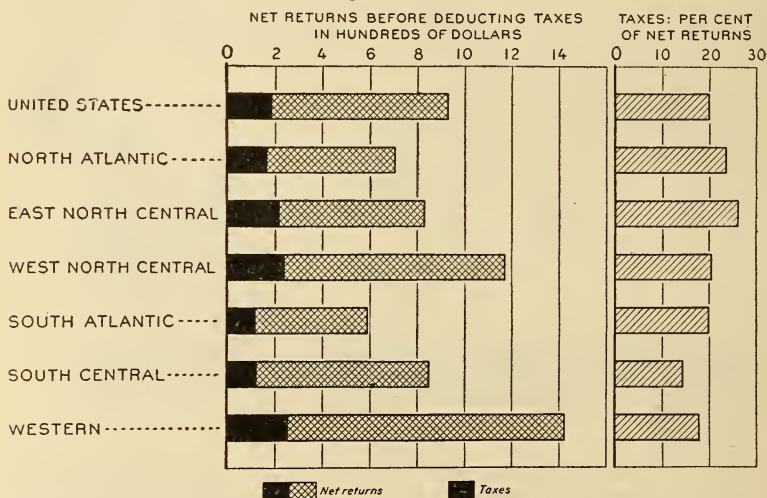


FIGURE 303.—The returns from a large number of farmers reporting to the United States Department of Agriculture indicate that during the period 1924-1928 taxes took about 20 per cent of the net returns from farming in the United States as a whole. This proportion varied from 14 per cent in the South Central group of States (Texas to Alabama and Kentucky) to 26 per cent in the east North Central States (Ohio, Indiana, Illinois, Wisconsin, and Michigan). In the South Atlantic States (Maryland to Florida) the ratio of taxes to net returns was the same as the average for the United States as a whole, but net returns per farm were lower than elsewhere



### GENERAL PROPERTY TAX AND NET RENT, SELECTED FARMS IN 14 STATES, SELECTED YEARS, 1921-1927

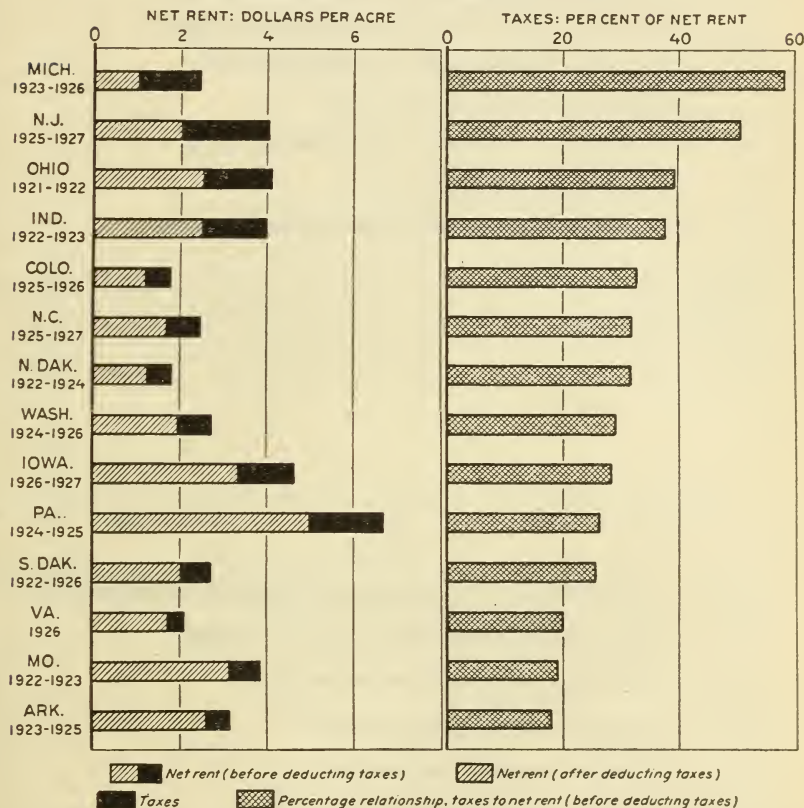


FIGURE 304.—Studies made during the past decade in selected localities of 14 States have shown that farm owners were paying taxes from 20 per cent of the net rent of the land to as high as 60 per cent. The farms studied in Michigan and New Jersey revealed the significant fact that over half the rental of the land was being taken for taxes. On the other hand, in Arkansas, Missouri, and Virginia, where less is being spent for public improvements, only about 20 per cent of the rent was paid as taxes. The graph is taken from United States Department of Agriculture Technical Bulletin 172, Taxation of Farm Property

## RELATION OF GENERAL PROPERTY TAX TO NET RENT ON FARM AND URBAN PROPERTY IN 9 STATES, SELECTED YEARS, 1922-1927

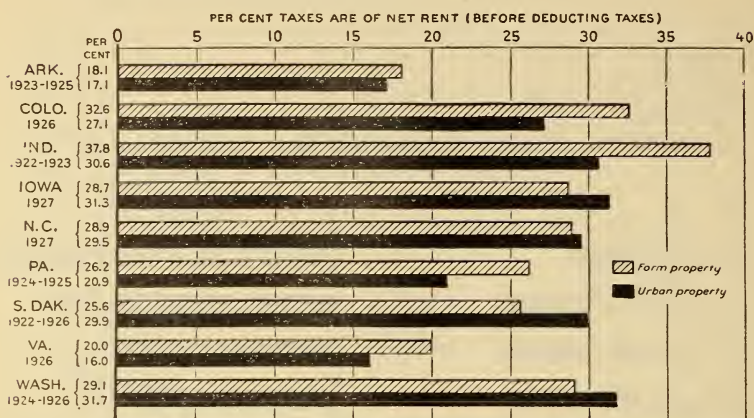


FIGURE 305.—In five of the nine States taxes take a greater part of the net rent of farm than of urban property. The greatest difference is in Indiana, where taxes on farms took 37.8 per cent of net rent and taxes on urban property 30.6 per cent. In most States the difference is slight. Unqualified conclusions, however, should not be drawn as to relative burdens of taxes on rural and urban real estate. Improvements are a much larger proportion of the total value of the latter than of the former, and it is generally recognized that taxes on improvements, especially in rapidly growing urban communities, to an important extent are shifted to the renter of the property. Moreover, the expenditure of tax revenue may have more effect on the value of urban than rural property.

## RATIOS OF ASSESSED VALUATIONS TO SALES VALUES OF RURAL REAL PROPERTY IN OREGON, CLASSIFIED IN VALUE GROUPS, 1921-1926

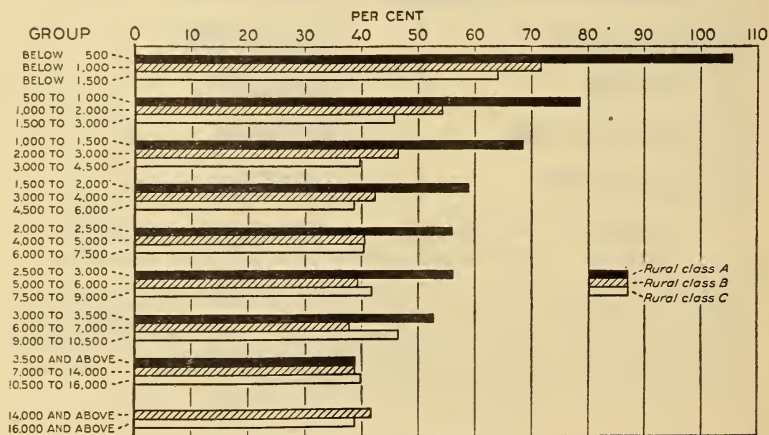


FIGURE 306.—Inequalities between individual properties in assessment of value have been shown in several studies. (See United States Department of Agriculture Technical Bulletin No. 172, pp. 44-51.) The above chart shows a general tendency toward overassessment of small properties in Oregon. It will be seen that properties having a sales value of less than \$500 were assessed a little above their selling value; that properties worth \$500 to \$1,000 were assessed at about 80 per cent of the selling value; of \$1,000 to \$1,500 at about 70 per cent; of \$1,500 to \$2,000 at about 60 per cent; of \$2,000 to \$3,500 at between 50 and 60 per cent; and properties worth over \$3,500 at about 40 per cent. The same tendency was found both in rural and in urban real estate in Kansas.

## FARM TENURE

The people living on farms have declined in numbers, but the family-sized farm has remained characteristic, and farmers who own their farms still greatly outnumber tenant farmers. This is in contrast with urban development with its tendency toward larger units and corporate ownership. It is possible to consider the tenant situation on farms in several ways, each throwing some light on the situation as a whole.

The 2,462,608 farms that were operated in 1925 as tenant farms were 38.6 per cent of all farms. In the several States the number of tenant farms ranged from 3.4 per cent of all farms in Maine to 68.3 per cent in Mississippi. In one county of the latter State 96 per cent of the farms were tenant operated; 70 per cent of the farmers owned neither work animals nor land, depending on their landlords for both; 97 per cent of the farms were under 50 acres in size; and 86 per cent of the land in crops harvested was in cotton. The extraordinary conditions in this county emphasize the importance of methods of presenting tenure statistics in a way that permits of geographic analysis and comparison.

In the North and West tenants who do not own the work animals are so few that it has not been deemed worth while to count them for census purposes, but in the South such tenants, called croppers, constitute 38.9 per cent of all tenants. Croppers harvested an average of but 26 acres of crops in 1924, as compared with 37 acres for other tenants in the South, and 101 acres for tenants in the North and West. The 16 Southern States contained 98 per cent of the colored tenant farmers in 1920; and as they had 61 per cent of all tenant farmers, these States greatly affect the averages for the country as a whole.

The percentage of tenancy among farmers is 51.1 in the South, and 26.6 in the other 32 States taken collectively. Over 245,000 tenants in the Northern and Western States, about 28 per cent, rent from their parents, grandparents, wife's parents, or brothers or sisters. Tenants not so closely related, or not related at all to their landlords, numbered about 616,000 in the 32 States of the North and West, but constituted only 19 per cent of all farmers in those States.

In the Northern and Western States the highest percentage of tenancy among farmers exists in Nebraska, with 46.4 per cent in 1925, followed by Iowa with 44.7 per cent, and Illinois with 42 per cent. But most farms in these States are good enough to encourage a tenant to expect to make a good living. In Iowa, for instance, the land and buildings in tenant farms were worth an average of \$24,256 in 1925, and Iowa tenant farms had an average of 113 acres in harvested crops in 1924.

Farm tenants increased in the country as a whole from 38.1 of all farmers in 1920 to 38.6 per cent in 1925. This was about the same rate of increase as from 1910 to 1920. Some of this increase is to be accounted for by the fact that many farm owners who had purchased at high prices just prior to the 1920 census were forced to relinquish ownership and had become tenants in 1925. In most of the area north of the Potomac and east of the Mississippi there was a decrease in the number of tenant farms and an increase in owner-operated farms. Many of these farms in the Northeastern States and near the mill cities of the South were operated by families some member of which was engaged in an urban occupation.

O. M. JOHNSON.



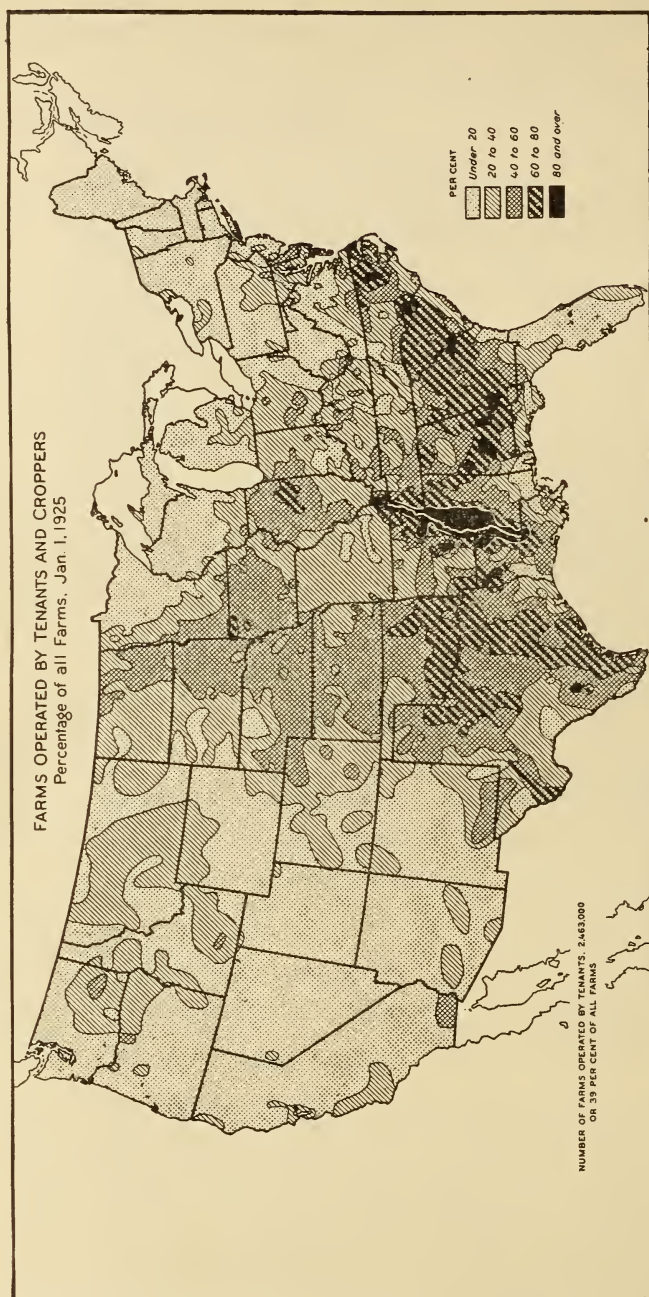


FIGURE 307.—Including cropper-operated farms with tenant farms, the percentage of all farms that are tenant-operated is high throughout most of the Cotton Belt and is highest on the most productive lands, notably in the alluvial districts along the Mississippi River. Outside the Cotton Belt the percentage is high only on the best land of the Corn Belt and in the moister portions of the wheat regions. It is low in the long-settled Northeastern States, in the Lakes States, and in the far West. Dairying, fruit and vegetable growing, and livestock ranching are less adapted to tenancy than cotton, corn, and wheat production, partly because of the greater investment, the greater technical skill, or greater permanence of tenure required of the farm operator.

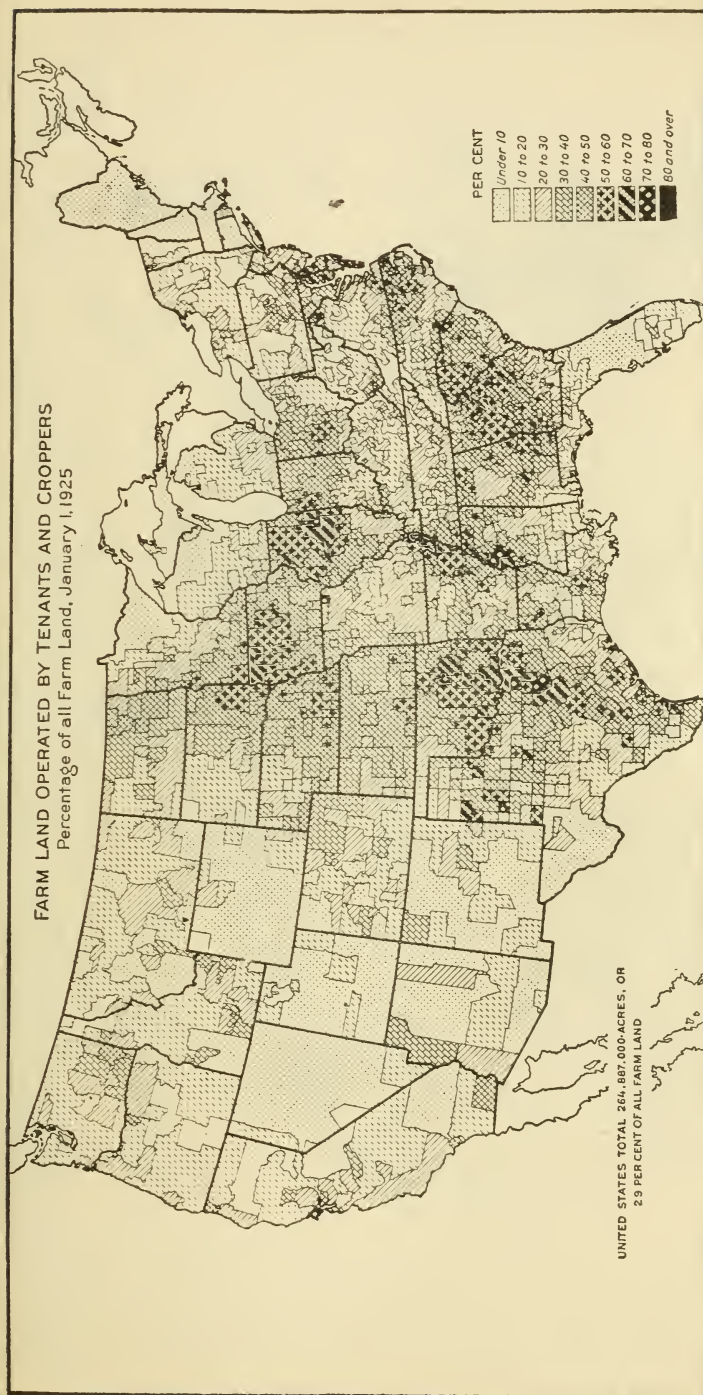


FIGURE 308.—This map shows the relative extent of tenancy from the standpoint of total farm land. The principal areas having over 60 per cent of the land operated by tenants are the richest portions of the Corn Belt and of the Cotton Belt. Where land is so productive, many owners who have little or no debt against their land can afford to retire to town and be supported by the rent of their farms. The small proportion of land operated by tenants in the hills of New England, in the southern Appalachian Mountains, on the sandy lower coastal plain of the South, and in the far West is noteworthy.



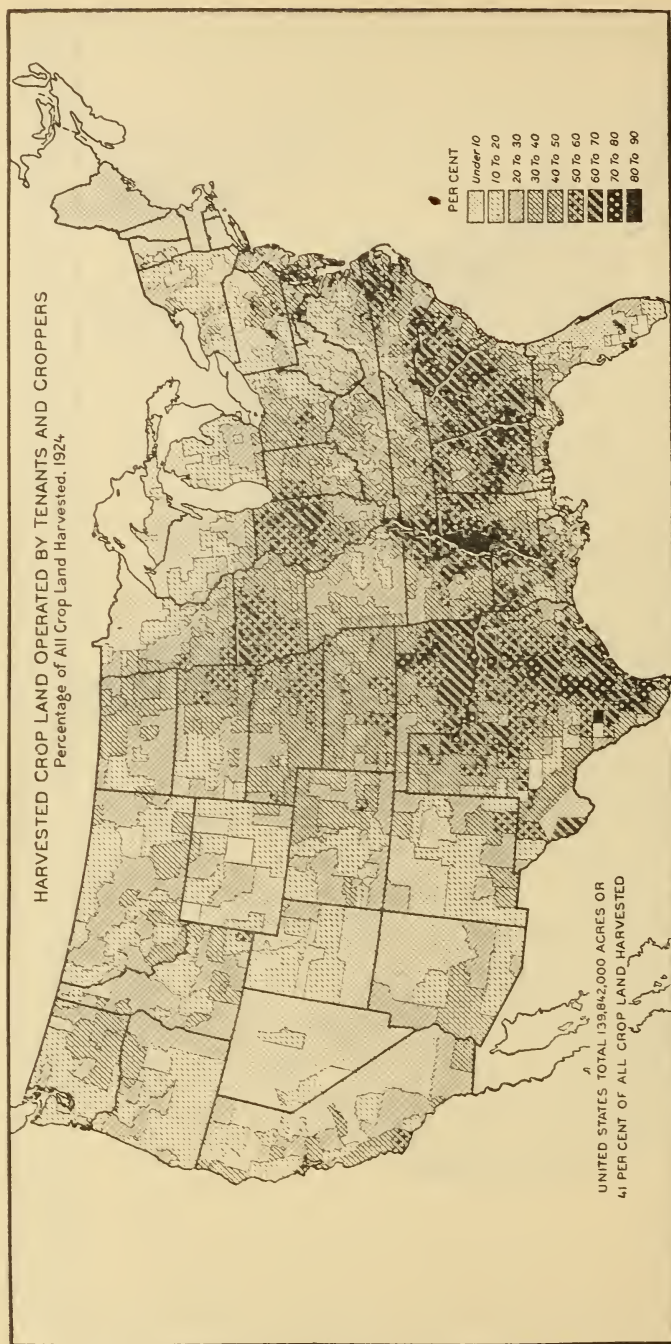


FIGURE 366.—The percentage of the crop land operated by tenants is normally higher than of the total farm land; that is, crop production is generally more favorable to tenancy than livestock production. In the Yazoo delta of Mississippi it exceeds 80 per cent; and on most of the better soils of the South, also in a few very fertile counties of the Corn Belt, it exceeds 60 per cent. In the hay and dairy region, on the other hand, and in the grazing and irrigated-crops region, where livestock industries are important, only a tenth to a fourth of the crop land in most counties is operated by tenants. In the wheat regions the proportion ranges, in general, from 30 to 60 per cent.



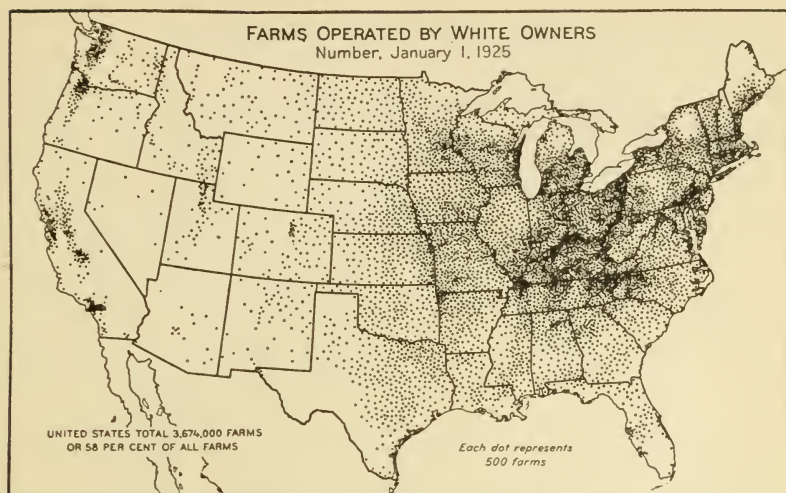


FIGURE 310.—The largest number of farms operated by white owners per square mile is found in the hay and dairy region, in southeastern Pennsylvania, in the Ohio Valley, in Kentucky, in the southern Appalachians, and in the valleys of the Pacific coast. These are regions of small farms. There are fewer farm owner operators in the prairie portion of the Corn Belt than in the originally forested sections. (Fig. 11.) This is due, in part, to the larger farms (fig. 252) and in part to the larger proportion of tenants. (Fig. 307.) The thinner distribution in northern New England, the upper Lakes area, and the West is owing to fewer farms and not to a smaller proportion of farms operated by owners

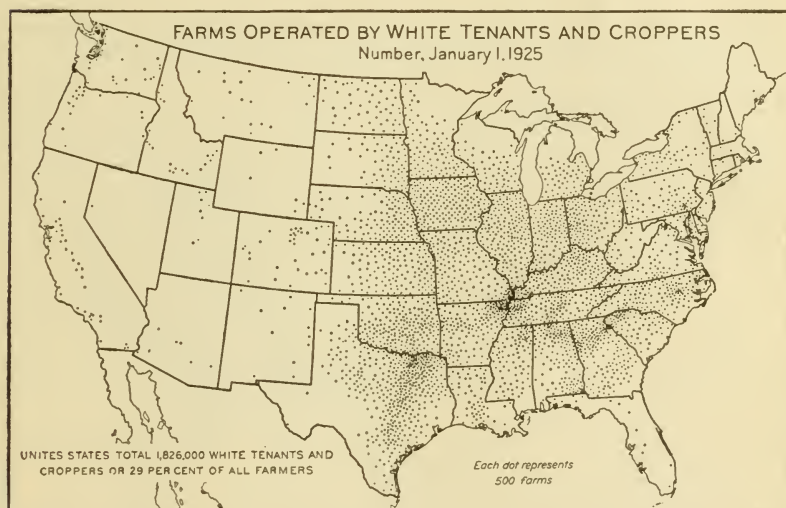


FIGURE 311.—The heaviest concentrations of farms operated by white tenants (including croppers) are along the northern margin of the Cotton Belt, especially in the upper piedmont of the Carolinas, Georgia, and Alabama, and the upper end of the Mississippi Delta, also in the black waxy prairie of Texas. In these districts negroes are less numerous than to the south and east. White tenants are numerous also in the tobacco-growing sections of Virginia, North Carolina, Kentucky, and Tennessee, and throughout the Corn Belt. They are relatively numerous in the wheat belts, but because of the larger size of farms they appear to be thickly scattered. The small number of tenants, as compared with owners (fig. 310), is notable in the hay and dairy region and in the West

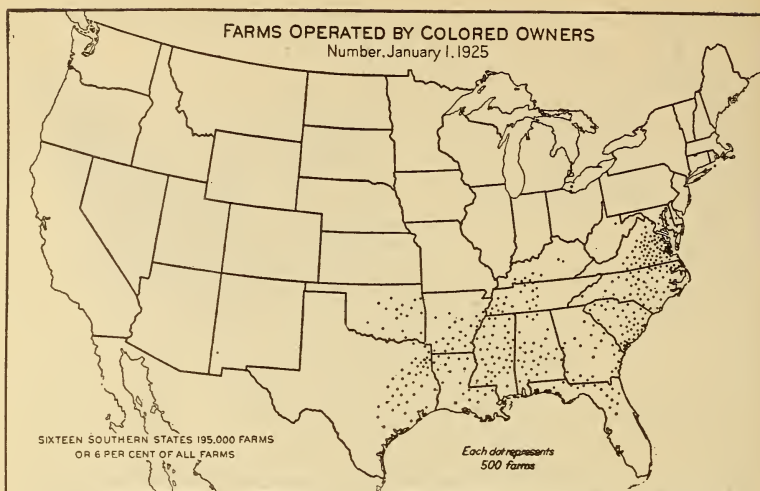


FIGURE 312.—The largest number of farms operated by negro owners is found in eastern Virginia and southeastern South Carolina, where negro ownership became established in reconstruction days. In Virginia and in Florida there are almost twice as many farms operated by negro owners as by negro tenants, but in the Cotton Belt negro tenants greatly exceed owners in number. (Fig. 313.) In 1925 negro owners were not separately tabulated in the Northern and Western States. Of the 233,222 farms in the United States operated by negro and nonwhite owners in 1919 only 15,633 were in the North and West. However, 58 per cent of the colored farmers in the North and West owned their farms, as compared with 24 per cent in the South

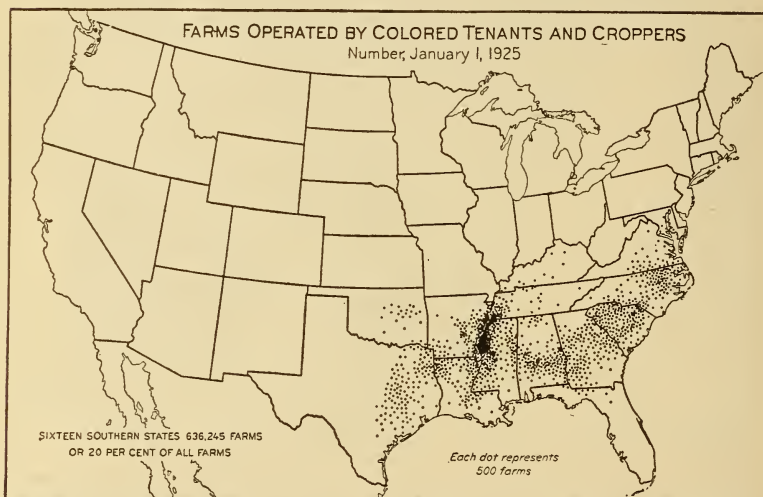


FIGURE 313.—The negro tenant and cropper farms or holdings are located mostly in the Yazoo (Miss.) delta, in the black prairie of Alabama, and in the upper coastal plain and piedmont of Georgia and the Carolinas—districts having soils especially adapted to cotton production. Many of these "farms" are merely allotments to croppers plantations, the owner of the plantation furnishing the cropper with his mule, his farm implements, fertilizer, and generally with food, sometimes even clothing, until the crop is made in the fall and the proceeds divided between them. Negro tenants and croppers are much fewer in Texas, largely because slavery never became well established there

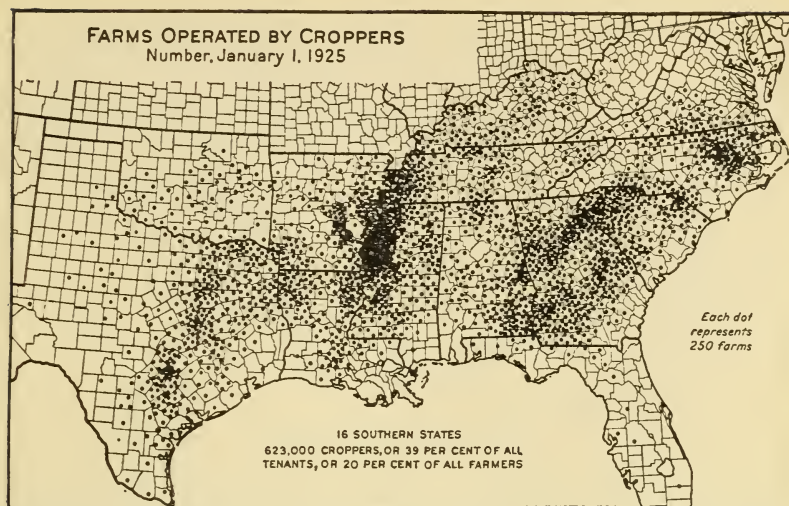


FIGURE 314.—This map shows croppers separately from other tenants. Croppers in the South generally grow cotton or tobacco for a share of the crop. They use work stock furnished by their landlords, they themselves owning little or no equipment, and in many States are by law classed as laborers and not as tenants. The territory of greatest density is in the Yazoo (Miss.) Delta, which is nearly all tillable and is largely devoted to cotton production. In parts of the old Cotton Belt, notably in South Carolina and Georgia, croppers have increased recently, because many renters lost so much that they could not furnish work animals and equipment with which to farm. Most of the croppers in Kentucky and Virginia grow tobacco

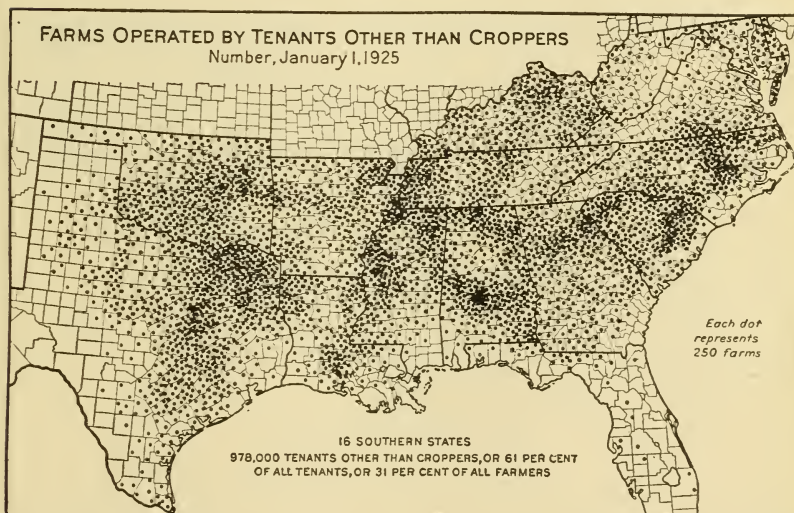


FIGURE 315.—This map indicates the number of tenants who own their work animals. Frequently, however, such tenants in the Southern States are so in debt that they only nominally own this stock. Comparison with Figure 314 shows a much more uneven distribution of croppers than of other tenants. In Oklahoma and in most parts of Texas, Arkansas, Alabama, and North Carolina, Tennessee, Kentucky, and Virginia the croppers are greatly outnumbered by the other tenants. Both classes of tenants are numerous in the strip of rich cotton-growing country along the Mississippi River, in the black prairie of Texas, and in South Carolina and Georgia. In the Yazoo delta and in southern Georgia there are many more croppers than other tenants



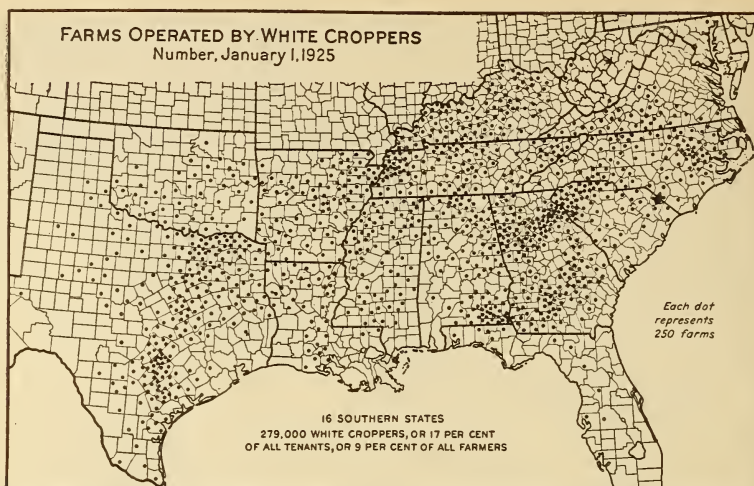


FIGURE 316.—In the South many families, even among the whites, are so poor that they can not own a mule, its harness, and the few implements of a small cotton farmer. Without ownership of these things the relatively independent status of a farmer may be achieved by a young married man by becoming a cropper under a landowner willing to supply them, and a house, the land, and even advances on which to subsist while the crop is growing. White croppers are much more evenly distributed over the South than negro croppers. In many districts where white croppers are most numerous there have never been many negroes, as in upper Georgia and South Carolina, western North Carolina, Tennessee (except the southwest corner), Kentucky, western Arkansas, and Texas

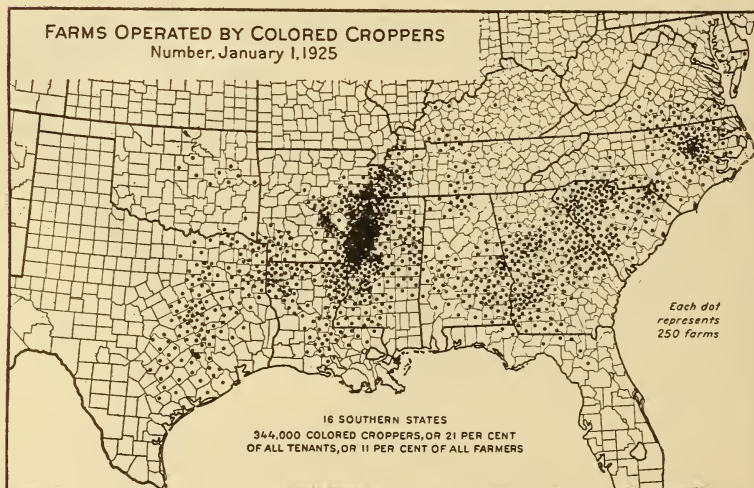


FIGURE 317.—Colored croppers are confined to the Cotton Belt, except a few thousand who grow tobacco north of that belt. Among the negroes the cropper system is of the greatest importance on the intensely cultivated and closely supervised plantations of the Yazoo delta of Mississippi and adjacent bottom lands in Arkansas. There are still large numbers of negro croppers in the piedmont and upper coastal plain of Georgia and South Carolina, and in the mixed cotton and tobacco section around Raleigh; but few are left in the black prairie of Alabama. The cropper status is more permanent with colored than with white tenants; many colored farmers seek work as croppers in their old age, whereas white farmers have by that time commonly achieved ownership

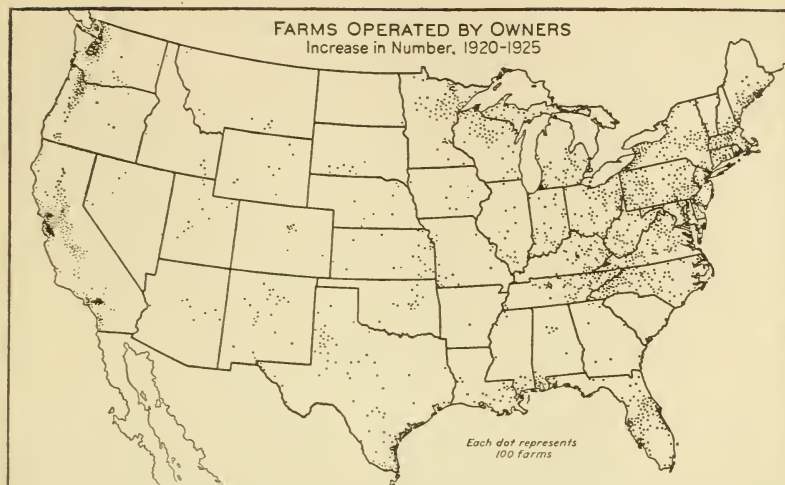


FIGURE 318.—The number of farms operated by their owners has increased in the Northeastern States, where most of the farmers are engaged in producing milk, fruits, vegetables, poultry, and eggs for nearby cities and towns. Simultaneously the number of tenant farms has decreased. (Fig. 321.) This shift toward ownership extends as far west as Illinois and as far south as western North Carolina and Tennessee. A notable increase in owner-operated farms has also occurred in the Pacific Coast States, especially near the cities, and in Florida; but there has been no corresponding decrease in tenant farms; that is, the trend toward ownership is associated with an increase in number of fruit, truck, and dairy farms

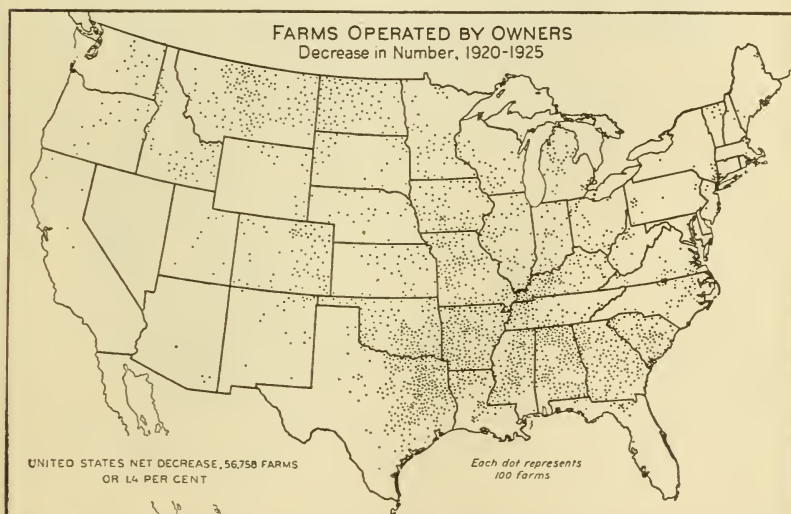


FIGURE 319.—The decline in numbers of owner-farmers between 1920 and 1925 was large in the Cotton Belt, excluding North Carolina, in the western Corn Belt, and in the spring-wheat region. This decline is associated with the changed income of farmers producing the staples—cotton, corn, and the small grains. When the period of hard times began just after the 1920 census was taken, much land was heavily mortgaged, and as a result of the hard times much of this land, even of the best land, was lost by its owners through foreclosure. The usual number of tenant farmers were also prevented from accumulating the money needed to buy the farms of those owners who are continually retiring because of age or disability

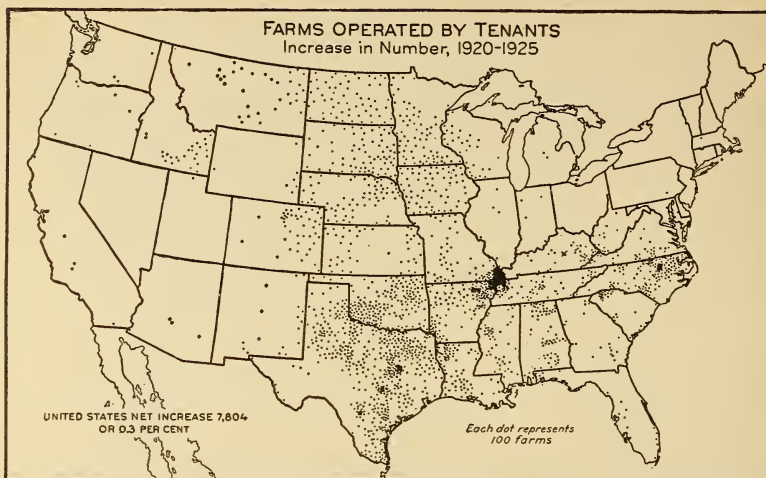


FIGURE 320.—The expansion of cotton growing to newly drained lands in and near southeastern Missouri conspicuously increased the number of tenant farms. Most other increases in tenant farms occurred in States west of the Mississippi River, and these are seemingly closely connected with decreases in owner farms (fig. 319), except in western Texas and western Kansas, where there was an increase in both owner and tenant operated farms. Losses in owner farms were heavy in the eastern Cotton Belt and were not offset by increases in tenant farms. In Georgia and South Carolina there was a notable decrease in total number of farms incident to the devastations of the boll weevil, and much land went out of use for farming purposes

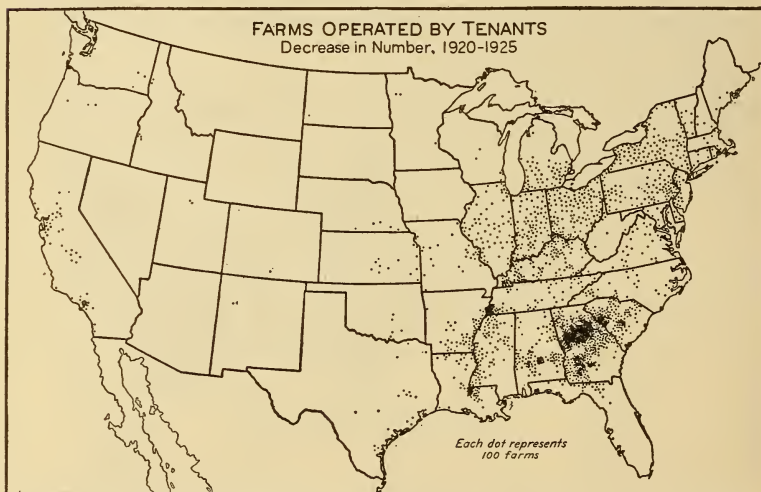


FIGURE 321.—Decreases in farms operated by tenants were almost confined to the States east of the Mississippi River, the decrease being especially large in Georgia and South Carolina, where much land farmed by tenants in 1920 was not being farmed in 1925. In the Atlantic States north of the Cotton Belt decreases in farms operated by tenants were more than offset in most counties by increases in farms operated by owners, but in the Corn Belt east of the Mississippi River decreases occurred in most counties in number of both owner and tenant operated farms. Minor decreases in tenant farms will be noted in southeastern Arkansas and locally in Louisiana and California



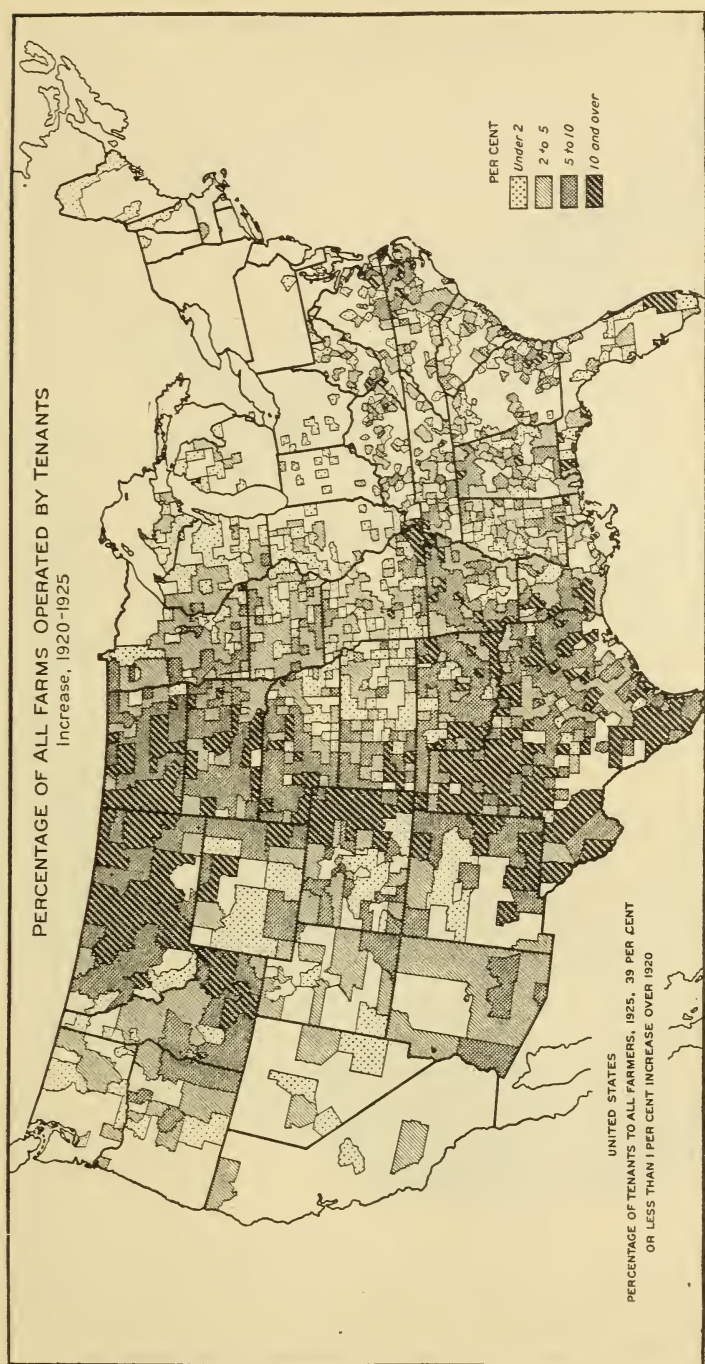


FIGURE 322.—The frequency of farm tenancy increased in the Great Plains region, which was passing out of the pioneer stage, many older farmers renting their farms and retiring to the towns. There were also many foreclosures on mortgaged farms in this region and renting of the farms to the former owners, despite the fact that it was almost the only region in which the acreage of harvested crops increased. (Fig. 15.) Much of the increase of tenancy in the far West was owing to the utilization of some of the former range land for grain production, which is better adapted to tenancy than livestock ranching.

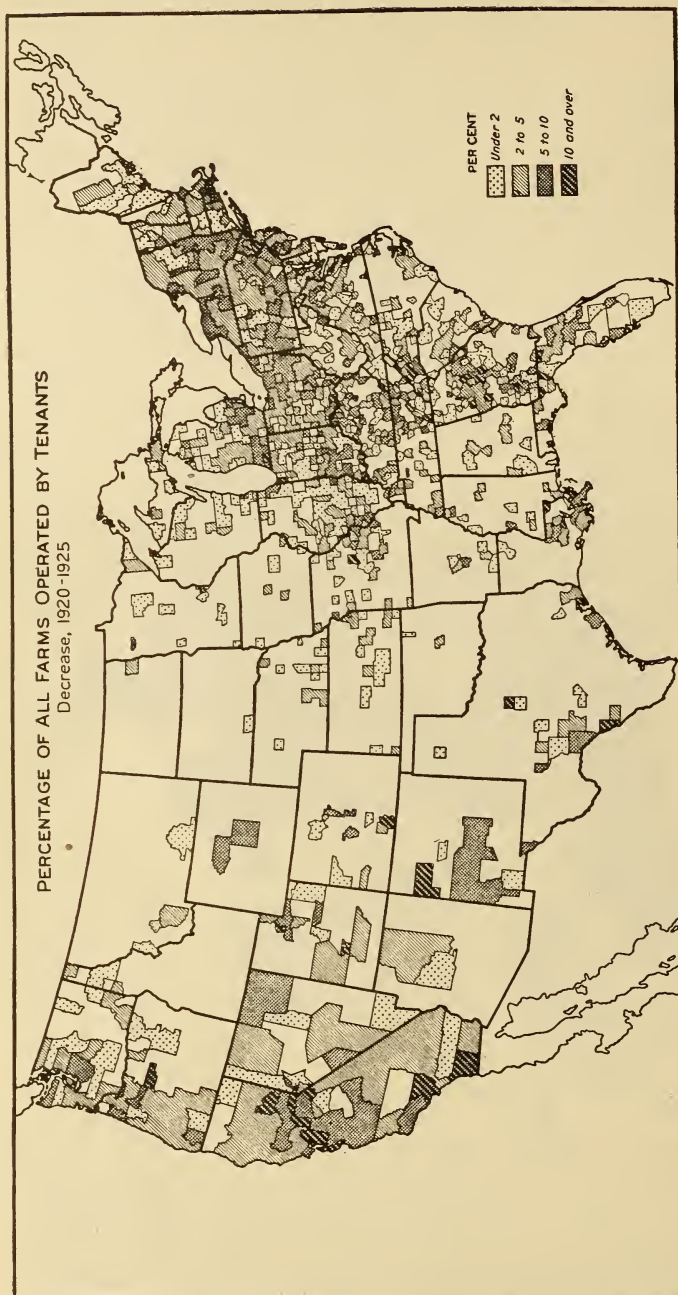


FIGURE 323.— The frequency of farm tenancy decreased almost universally in the region east of Chicago and St. Louis and north of the Ohio and Potomac Rivers, also along the Pacific coast. In the South, particularly Georgia and South Carolina, the local declines in the proportion of farmers who are tenants were due partly to the greater freedom of the tenants than of farm owners to move to the southern cities or to the north. The apparent trend toward farm operation by owners in the industrial area, and toward increasing tenancy in many dominantly agricultural areas, is significant and worthy of study.

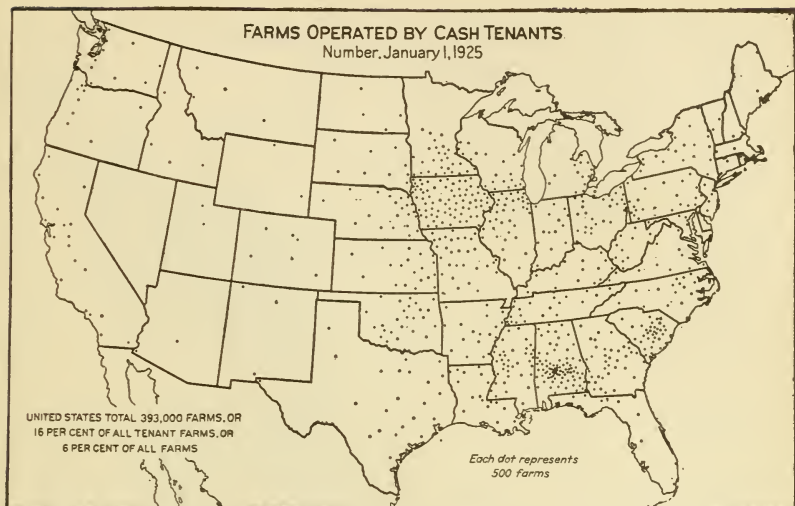


FIGURE 324.—Tenants paying cash rent, although constituting only 16 per cent of all tenants, are found in every State. In general cash rent appeals to those owners who can not give personal supervision to their land, such as absentees and those unfamiliar with farming. In central Alabama and some other parts of the old Cotton Belt land is owned by business and professional men who rent for cash but supervise rather closely, because their tenants are financially irresponsible. In the Corn Belt cash tenancy is declining but continues to be important in the western part especially, and near the cities, notably Chicago. In New England 62 per cent of the tenants pay cash rent, but tenants of any kind are few

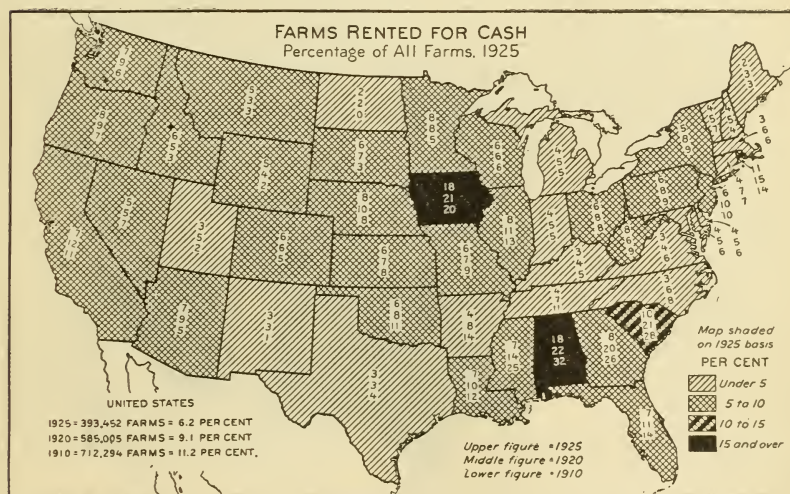


FIGURE 325.—In most States between 5 and 10 per cent of the farms are rented for cash, and only in Iowa, Alabama, and South Carolina did the proportion exceed 10 per cent in 1925. Cash renting was of greater importance in time past, particularly in the older agricultural States. The decline between 1920 and 1925 was notable in the Southern States east of Texas, and to a less extent in the Corn Belt and northeastern States. This is doubtless in part a consequence of the agricultural depression. Percentages as given include standing renters with cash renters in 1910 but not in 1920 or in 1925. This, however, scarcely affects the percentages shown, except in Georgia and South Carolina



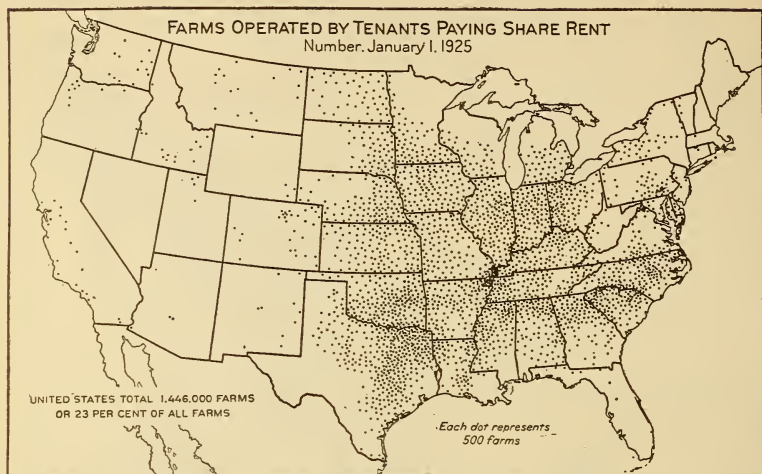


FIGURE 326.—Practically 80 per cent of the farm tenants other than croppers in the United States pay a rent other than cash, and in most districts where the proportion paying cash rent is high there are not many cash tenants. (Tenants in this case include share tenants, share-cash tenants, and standing renters.) Most tenants who do not pay their rent wholly in cash are share renters. The greatest number farm where the cotton, corn, wheat, oats, and tobacco crops are largely grown, a few where dairying is important; scarcely any farm elsewhere. In the Corn Belt many share renters pay both share and cash rent—share the readily salable crops, such as corn and the small grains, but pay cash rent for pasture and similar land

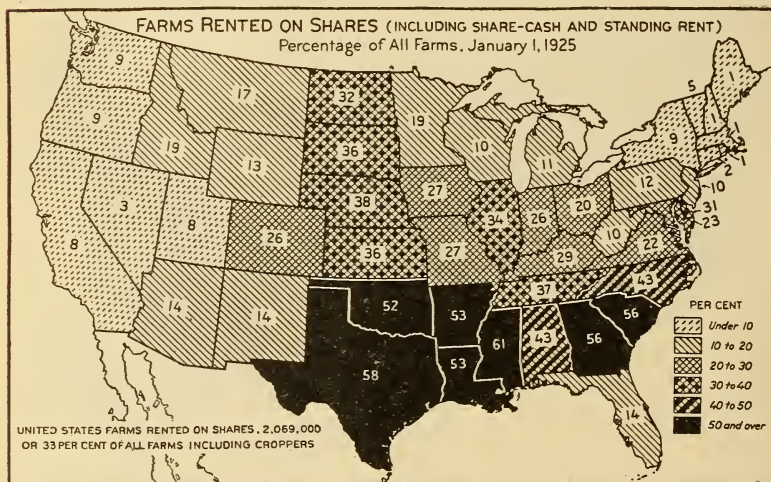


FIGURE 327.—Over half the farms in the Cotton Belt States, except Alabama and North Carolina, are tenant or cropper farms rented on shares; in the wheat States from Kansas to North Dakota, also in Illinois, Tennessee, and Delaware, over two-fifths of the farms are rented on shares. On the other hand, in New England, New York, and New Jersey (where dairying, fruit growing, and trucking are dominant) and in West Virginia, Wisconsin, the Pacific Coast States, and Utah (where the same kinds of farming are characteristic) less than 10 per cent of the farms are rented on shares. Cotton, corn, and wheat are the crops that are likely to be produced by tenants

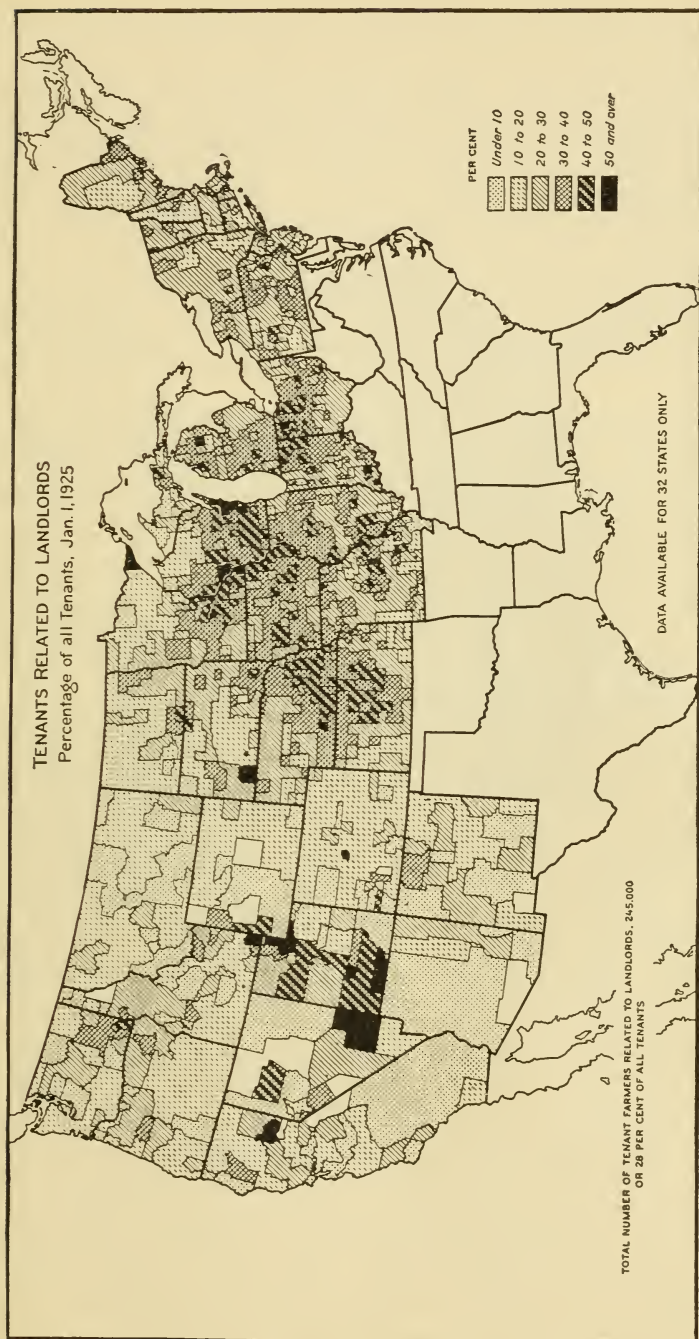


FIGURE 328.—Wherever, as in the northern United States, a great many farm landlords are retired farmers, a high percentage of tenancy may not be as serious as it seems, because a large proportion of the tenants may be related to their landlords. The census enumerated only the cases in which the tenant rents from his own or his wife's parent, grandparent, brother, or sister. In the Corn Belt such tenants constitute from 20 to 50 per cent of all tenants, and in a few counties in Wisconsin and Utah the proportion exceeds 50 per cent. This is true of one or two counties in several other States. But in general only 10 to 30 per cent of the tenants in the Northern and Western States rent from a near relative

## FARM LABOR

Hired farm laborers are an essential part of the agricultural working classes. Their wages form the largest single item of expense to American farmers.

The census of January, 1920, reported one-fourth of the gainfully occupied population, or about 10,680,000 persons, as engaged in agriculture and animal husbandry. Of these, 2,425,000, or 23 per cent, are estimated to have been hired workers not working on their home farms. Because farming is least active at that time of year in practically all States, these 10,680,000 persons may be regarded as the regular working force of American agriculture.

Spring farm work brings a demand for seasonal workers and an increase in the volume of agricultural employment. Conspicuous among the early operations requiring extra labor are soil preparation, crop planting, cotton chopping, sugar-beet blocking and thinning, and lambing.

The harvest season brings greater need for extra laborers. Thousands of casual workers respond to pick fruits and cotton, gather truck crops, harvest and thresh wheat, dig potatoes, and husk corn. Women and children take a large part in some of these tasks, within their strength and ability. The labor force required in some of these harvests is several times that needed to grow crops.

The areas of greatest demand for extra harvest help are characterized by some kind of specialized crop production. Such are the truck crop and fruit districts of the Atlantic and Pacific Coast States, the Cotton Belt (especially west of the Mississippi River), the wheat regions, the Corn Belt, and the sugar-beet districts.

Dairy farms have the steadiest demand for labor. Their livestock require nearly the same amount of care throughout the year.

The proportion of the population required to supply the needs of the Nation for agricultural products has steadily declined in the last century. In 1820 about 87 per cent of the persons gainfully occupied were engaged in agriculture. Since 1840 the introduction of machinery has revolutionized agricultural methods. Farm machinery was at first animal powered; in the last 15 years motorization greatly increased its efficiency and displaced many work animals. The average farm worker has become able to produce far more than is required for his family. This has released so large a proportion of the working population to other occupations that now less than one-quarter of the whole can produce farm products for all.

The farmer's largest items of money expenditure include wages of hired labor; livestock, feed, fertilizer, seed, machinery, and tools bought; and taxes. The largest of these is wages. For the country as a whole it constitutes one-quarter of the expenditures for the items named. In 1927 and 1928 the proportion ranged from 20 per cent in the North Central to 40 per cent in the South Central States. In the North Atlantic States hired-labor wages were less than the expense for feed. In the North Central States the expenditure for livestock is about the same as for hired labor. The value of board and rent furnished would add a quarter to the money remuneration of hired farm laborers.

J. C. FOLSOM.



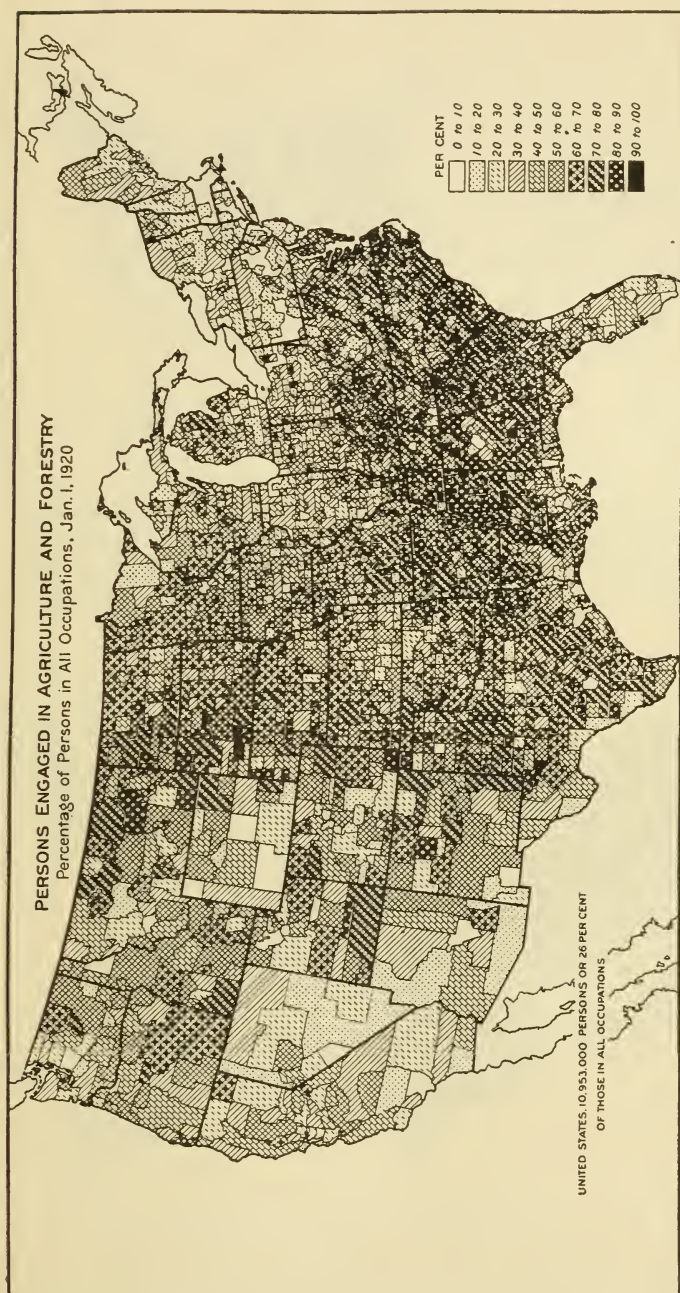


FIGURE 329.—Agriculture, animal husbandry, or forestry was the occupation of slightly over a quarter of those gainfully employed in the United States on January 1, 1920. The figures for January would have been found in the crop season. In the Carolinas, Georgia, Alabama, Mississippi, and the Dakotas 50 per cent or more of the population was engaged in agriculture in contrast to less than 10 per cent in southern New England, New York, New Jersey, and Pennsylvania. Not quite half of those engaged in agriculture in Rhode Island, New Jersey, South Carolina, Florida, and Louisiana were farm operators, even in January. In Arizona only 28 per cent were farm operators. In Pennsylvania, Ohio, and Kansas 70 per cent were farm operators.

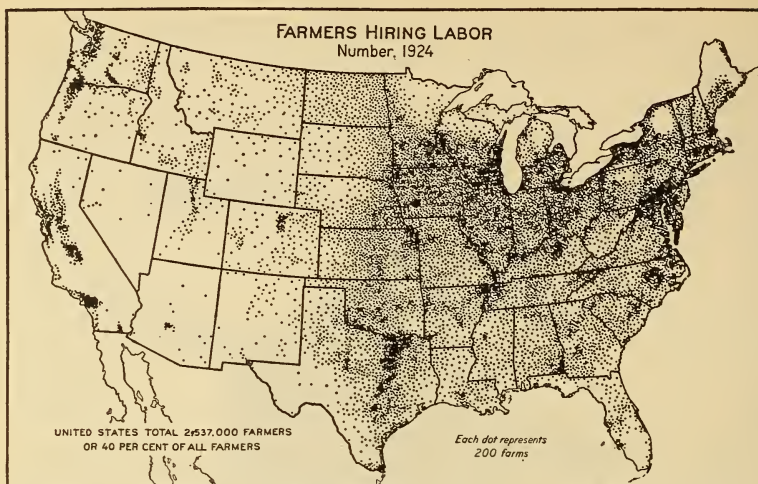


FIGURE 330.—The number of farmers hiring labor is greatest in the districts of more intensive agriculture and of specialized crops, especially where farmers have to hire harvest help. Many farmers growing fruit and truck crops, cotton, and wheat need no labor except at harvest. General crop and dairy farmers, especially the latter, employ labor more steadily, over the year around. The map of farmers hiring labor strikingly resembles that of land in harvested crops. (Fig. 14.) Farmers in the North hire labor more commonly than those in the "old South," where croppers, who are classed as farmers, but are mostly laborers paid by a share of the crop, provide a large proportion of the labor needed

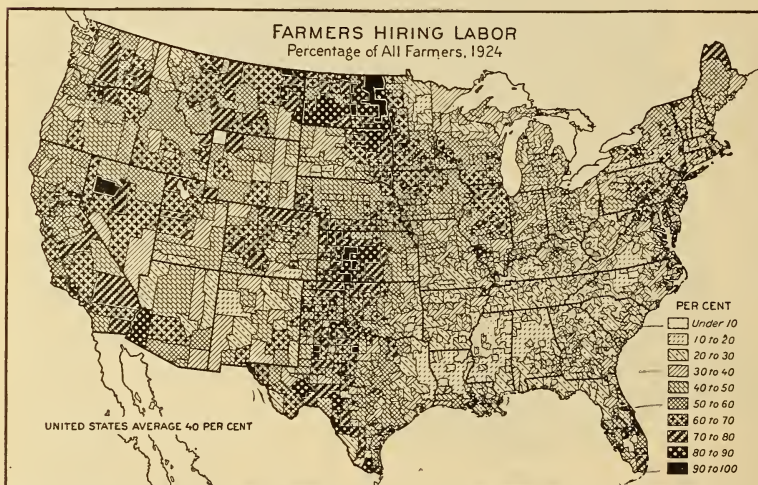


FIGURE 331.—The percentage of farmers hiring labor depends upon the size of the farm business, the kind of farming, and other factors. The percentage is greatest in regions of large farms and of highly specialized agriculture. However, on many specialized farms the farmer and his family can carry on alone most of the farm work except harvesting. The percentages are high among intensive truck and fruit farmers (note California, central Florida, and western New York), wheat farmers (the spring-wheat and hard winter-wheat regions stand out clearly), many Corn Belt farmers (notably in Illinois), and farmers with large livestock enterprises (notably in Nevada). Because of the cropper system in the South relatively few farmers hire labor



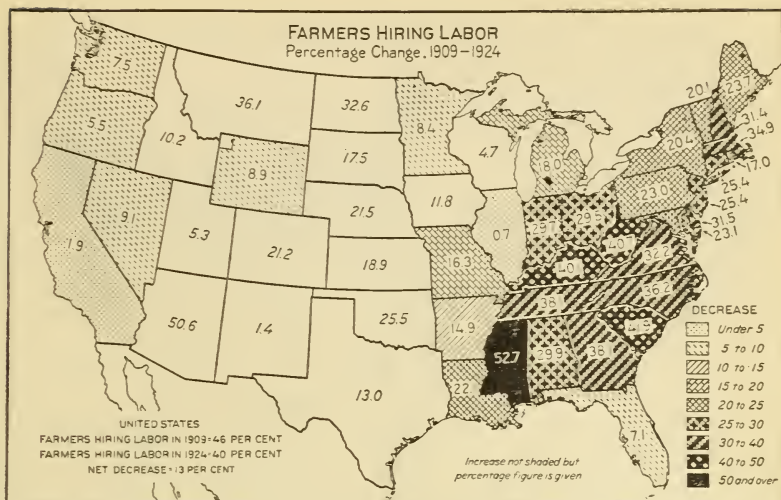


FIGURE 332.—The great changes from 1909 to 1924 in percentage of farmers hiring labor were due partly to the rise in farm expenses, including wages, whereas prices of farm products rose much less. Many farmers therefore had to hire less labor. Increased motorization of agriculture was another factor. The migration to the North or to southern cities of thousands of negroes, white farmers, and laborers, due to the spread of the boll weevil and to the high wages offered, reduced labor supply and demand in the "old South." Expanding grain and cotton production in the Great Plains region and the development of fruit and truck farms on newly irrigated lands accounts for much of the increase in the Western States

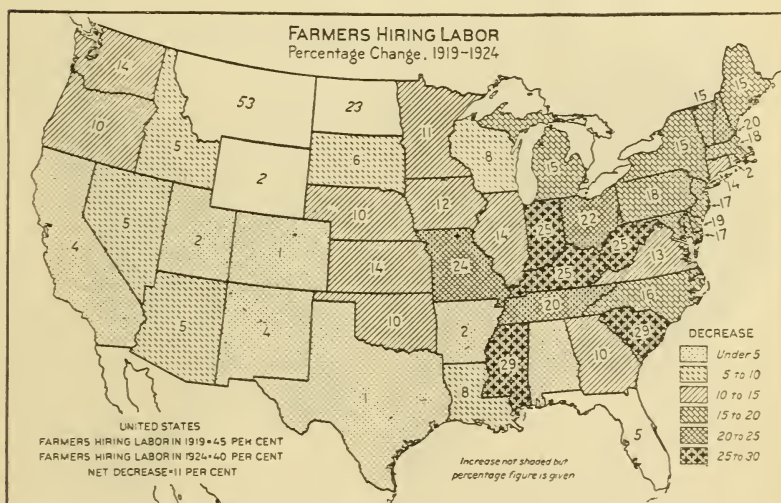


FIGURE 333.—The decrease in number of farmers hiring labor was greater between 1919 and 1924 than during the preceding decade. In the Northeastern States about three-fourths, and south of the Ohio and Potomac Rivers half to two-thirds, of the decrease between 1909 and 1924 (fig. 332) took place between 1919 and 1924. In most of the Great Plains and Rocky Mountain States the large increase between 1909 and 1919 changed to a small decrease. The increase in North Dakota and Montana is due largely to severe drought in 1919, when much of the crop was not harvested. The contrast between low prices of farm products and high wages after the World War facilitated the mechanization of agriculture and reduced the number of farms employing labor



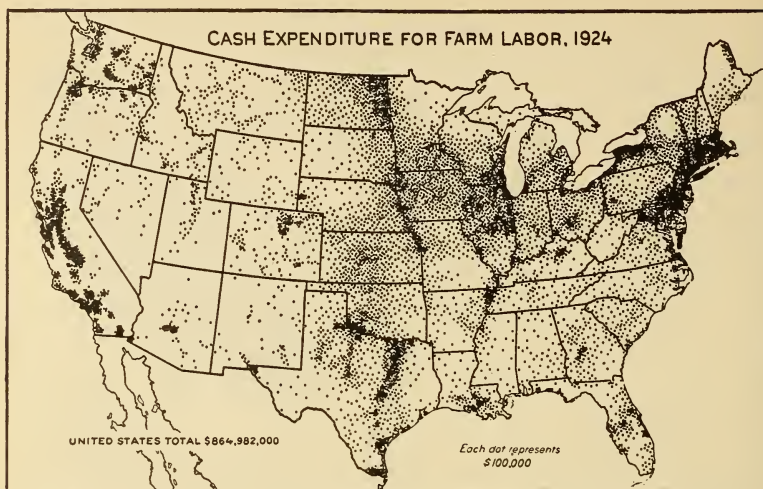


FIGURE 334.—The cash expenditure for farm labor in 1924 was greatest in the trucking, fruit-growing, and dairying areas, especially the trucking portions of the Atlantic coastal plain from Norfolk, Va., to eastern Massachusetts, the western New York fruit belt, and the irrigated sections of the West. Heavy expenditure was also general in the cotton sections of Texas and Oklahoma, in the central Corn Belt, in the spring-wheat region, and in the dairying sections of Wisconsin and New York. Cotton requires much hand labor, but money expenditure for this is avoided by use of croppers and tenants. In the western Cotton Belt, however, most of the labor needed by farmers is hired. Much of this labor is Mexican

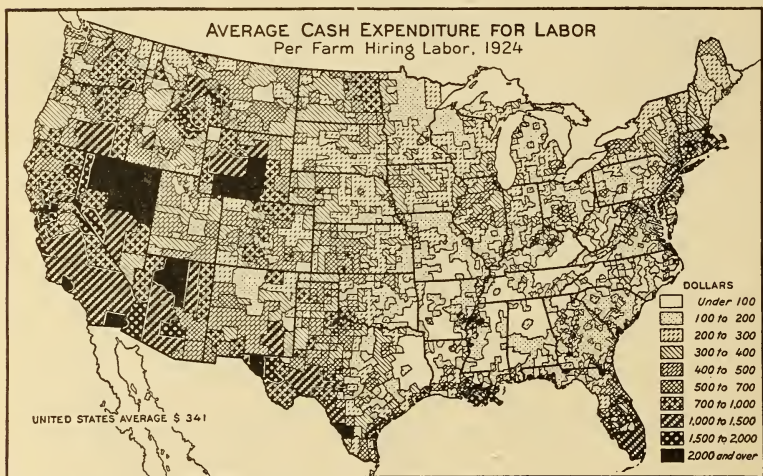


FIGURE 335.—Average cash expenditure for hired farm labor is influenced by type and area of farms, labor available, and nonagricultural wages. The latter are especially important in the North and East. Although the total expenditure for labor was greater in the Northeastern and North Central States and in California (fig. 334), the average expenditure per farm hiring labor was highest in several counties of the grazing and irrigated-crops region. There are two reasons: (1) The large stock farms or ranches in the arid regions require large total expenditures for labor but small average expenditure per acre, and (2) the fruit and truck farms in the long-season irrigated sections of the Southwest require much labor per acre

## FARM POPULATION

The following maps show the geographic distribution of urban population (population in incorporated places of 2,500 inhabitants and over), village population (population in incorporated places under 2,500 inhabitants), and farm population (all persons living on farms). This classification of population does not take into account persons living in unincorporated areas who do not live on farms; otherwise the distribution is inclusive of all population. Furthermore, it must be pointed out that there is a small overlapping of farm population upon the two other groups, for often farms lie within the boundaries of incorporated villages and cities.

The rapid growth of city populations and the strong competition of city industry with agriculture for intelligent workers and managers, are bringing the population factor of agriculture into a prominence never known before. It is realized that hereafter greater national attention will be paid to biological conditions that favor a good quality of farm population. It is no longer deemed sufficient to concentrate all efforts upon a good monetary reward for agricultural people, leaving the biological factors to play a negligible rôle, for it is becoming increasingly plain that good farmers are the product of certain constant socio-bionomic factors affecting the stamina, intelligence, and morale of the farm population—factors that are in no way assured on isolated American farms by satisfactory monetary returns alone.

The decrease of the farm population in the United States as a whole between 1920 and 1925 is a social phenomenon that has stirred considerable controversy. It has for the first time—(entirely out of the realm of pure academic discussion) raised the question as to what is to be considered an adequate number of people on farms in areas of various types of farming—adequate not only to produce food and fiber for the Nation at any fixed period but adequate to maintain from decade to decade a sufficient number of good farmers on the land, without running the risk of deterioration of the farm population on the one hand, and a let-down in the whole agricultural enterprise on the other.

These maps on farm population, based as they are upon the census figures of 1920 and 1925, will quickly portray to one interested in this fundamental point of view a few salient features in the population aspect of the agricultural problem.

A number of maps are presented showing how children living on farms are distributed among the States. The child in agriculture is an index of many trends, just as the volume of young stock is an index of future tendencies in the livestock industry. Certain States show a relatively low and declining percentage of children in the farm population. What does this fact imply for the maintenance of a farm population of quality in that State? Has the competition with industry for youth reduced the childbearing agricultural population to the danger point in that State? Whence are the future recruits from farms to cities to be drawn? It is such questions that these maps are intended to provoke.

C. J. GALPIN.

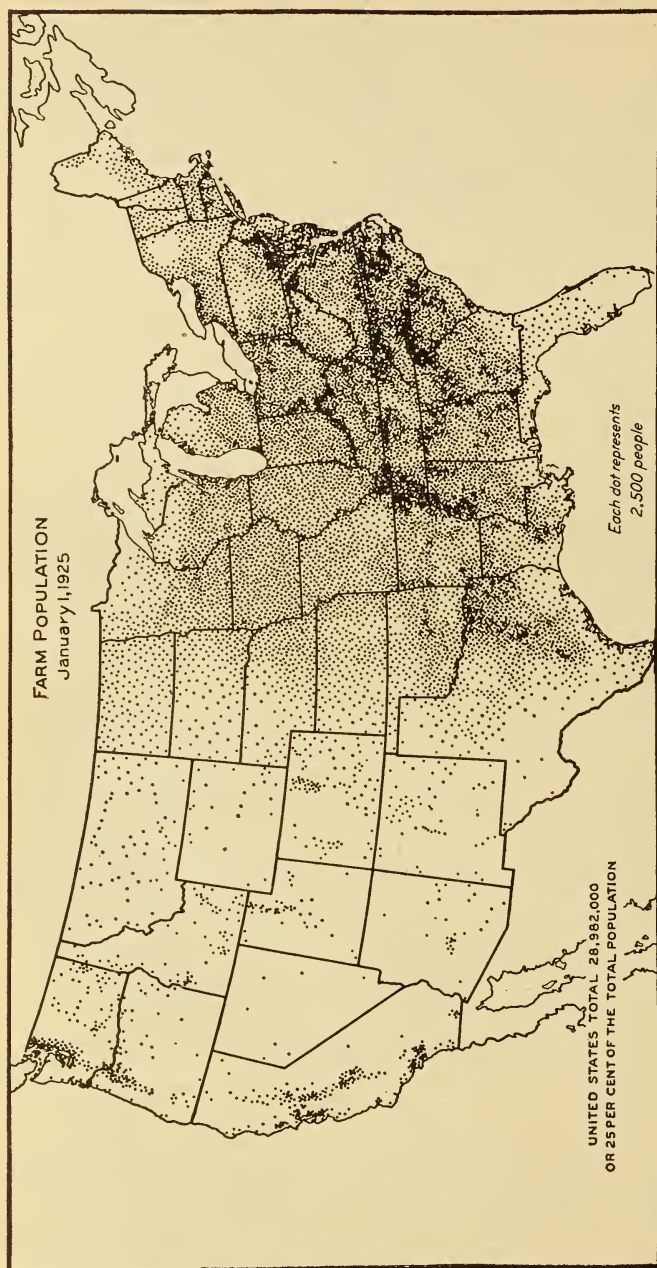


FIGURE 336.—Five-tenths of the farm population of the United States live in the Southern States (south of the Potomac and Ohio Rivers and including Oklahoma and Texas), four-tenths in the Northern States, and less than one-tenth in the 11 Western States. Farm population constitutes 45 per cent of the total population in the South, 17 per cent in the North, and 20 per cent in the West. Thirty per cent of the farm population in the South is negro or mulatto, of whom 30 per cent own their farms as compared with nearly 50 per cent for white farmers. In the North 70 per cent and in the West 75 per cent of the farm population consists of farm owner-operators and their families, nearly all white



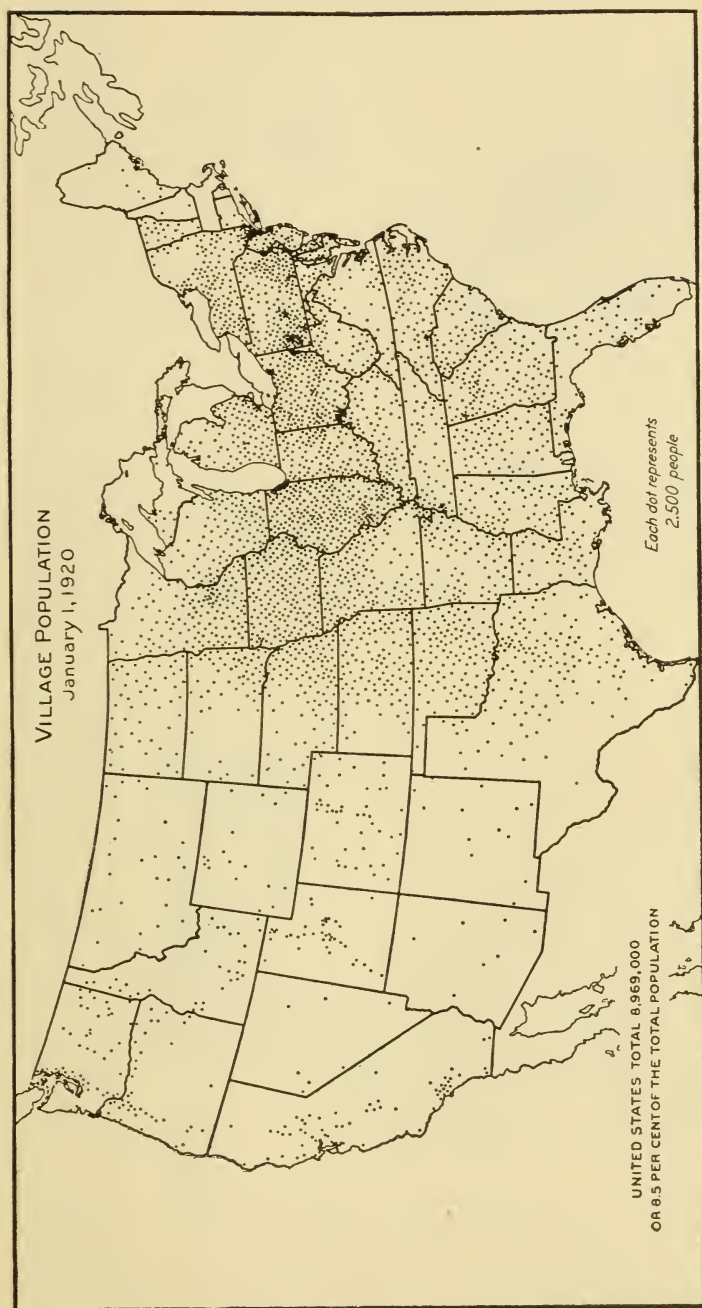
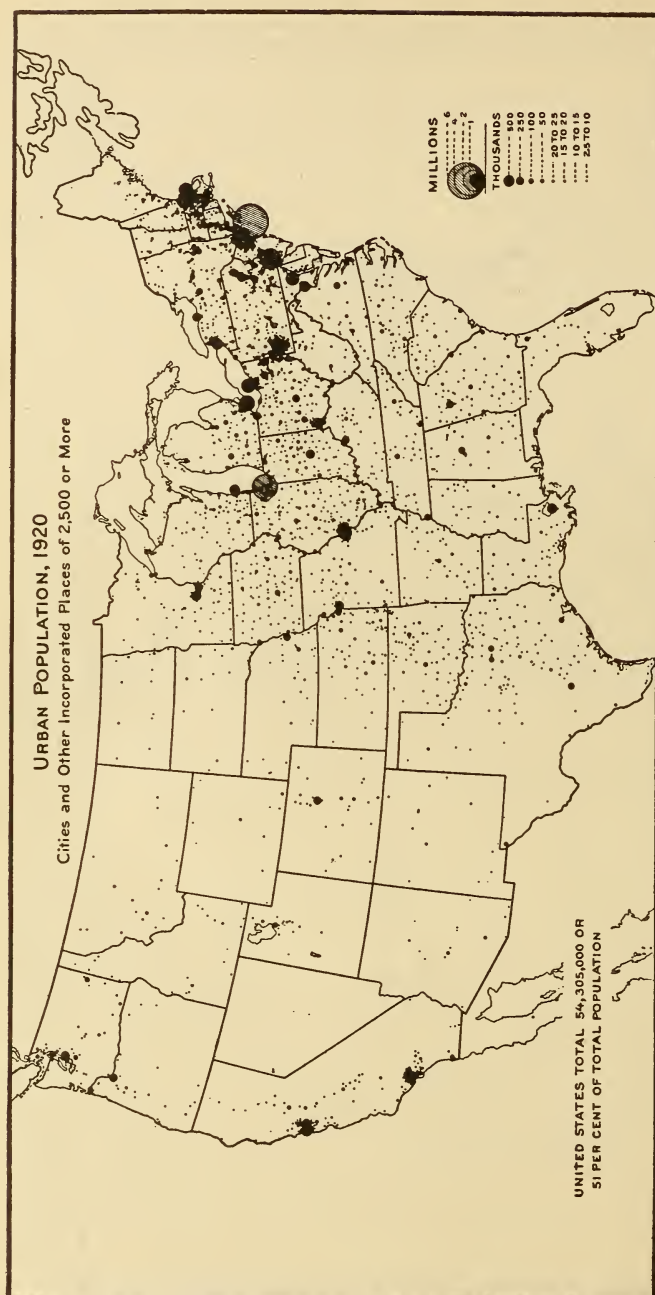


FIGURE 337.—Village population includes many people living on farms within the village limits. This term includes population of incorporated places of less than 2,500. It includes also many retired farmers, especially in the Corn Belt, and in the South and West, and tradesmen who serve the farmer's needs. In the Northeast a considerable factory population resides in villages. The geographic distribution of village population in the Corn Belt and in the hay and dairy regions is remarkably uniform, except near the cities and in New England. Whereas farm population is densest in the South and East, village population is densest in the Corn Belt and Northeastern States. It is also relatively dense in Utah, where many of the Mormon farmers live in villages.



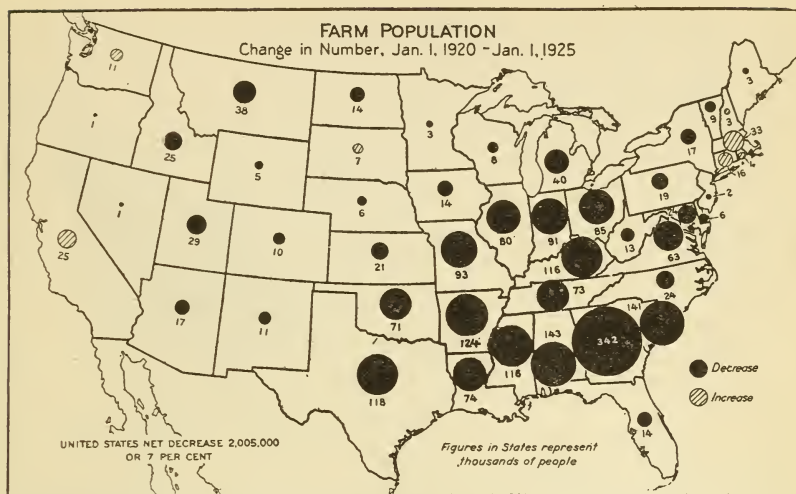


FIGURE 339.—The decrease in farm population was almost universal between 1920 and 1925, except in southern New England and the Pacific coast, and was notable in the South, except North Carolina and Florida. This decline in the South may be attributed in part to the immigration laws, which encouraged the migration of more than a million southern negroes and whites to northern cities, and in part to the devastation by the boll weevil and the decline in livestock production. The increase of farm population in southern New England consists in large part of factory employees and business men who buy portions of old farms, repair the house or build new, make a garden, keep a cow and few chickens for home use mostly, and produce enough products (over \$250) to meet the census definition of a farm.

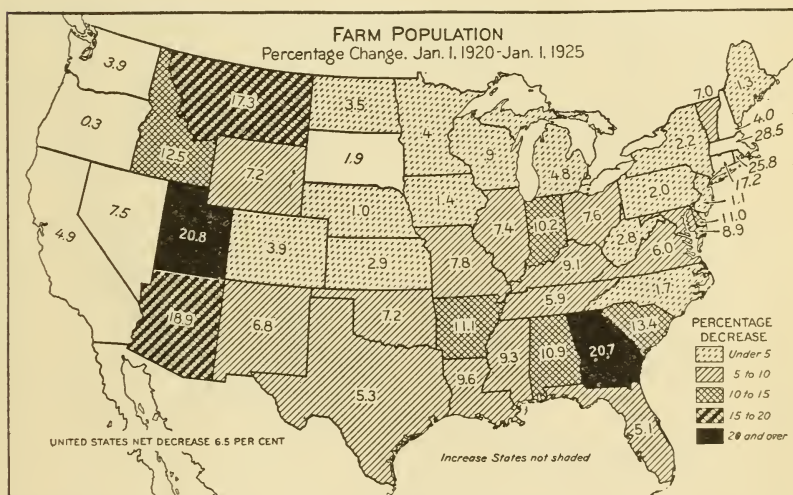


FIGURE 340.—The decrease in farm population exceeded 20 per cent in Georgia and Utah and was almost as great in Arizona and Montana. The decrease ranged from 9 to 13 per cent in the central and eastern Cotton Belt States, except North Carolina, which in this respect, as in many other ways, is distinct from the other States of the "old South." In the Corn Belt the decrease ranged from 1 per cent in Nebraska to 10 per cent in Indiana. The slight increase in South Dakota was mostly of homesteaders in the drier western part of the State. The increases in Massachusetts and Rhode Island, exceeding 25 per cent, were largely "amphibian" farmers (fig. 339); but the smaller increases in California and Washington were mostly fruit, truck, and poultry farmers.



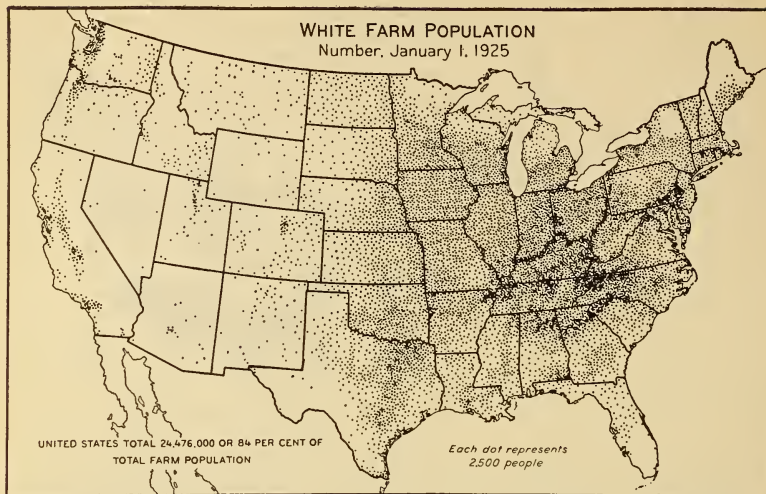


FIGURE 341.—Farm population of the white races is densest in the southern Appalachian Mountains, on the piedmont to the east, and on the highland rim area to the west, yet in these areas only 10 to 30 per cent of the land is in crops. But the birth rate is high. Southeastern Pennsylvania and the black prairie of Texas also have a dense farm population. All these areas are characterized by rather small farms. In the eastern Corn Belt farm population is denser than in the western prairie portion, where the farms are larger. The valleys of the Pacific coast, where most fruit and truck farms are small in area, are also now becoming districts of dense farm population

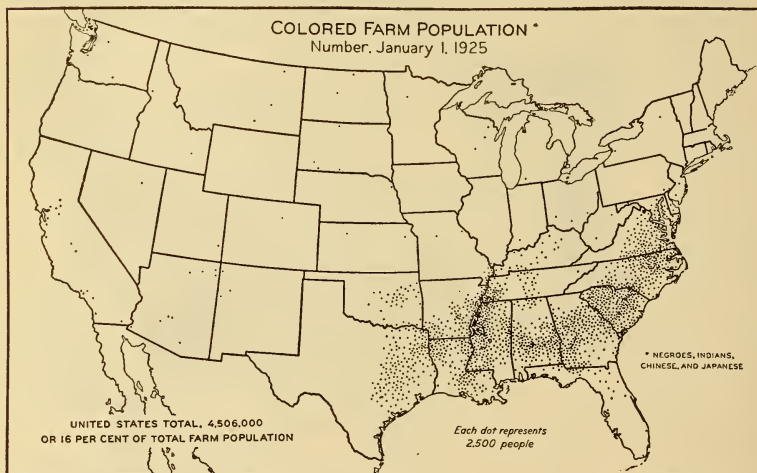


FIGURE 342.—Colored farm population, mostly negro, is almost confined to the Cotton Belt, except that it extends northward into eastern Virginia and Maryland, a plantation area in precotton days from which many slaves were sold to the South. A few thousand native Indian farmers will be noted in Wisconsin, the Dakotas, Montana, New Mexico, and Arizona. The dots in California represent mostly Japanese and Chinese. The colored farm population constituted only 16 per cent of the total farm population of the Nation in 1925, but in South Carolina and Mississippi it considerably exceeded the white farm population. There are less than 100,000 colored farmers in all the Northern States and somewhat over 100,000 in the 11 Western States

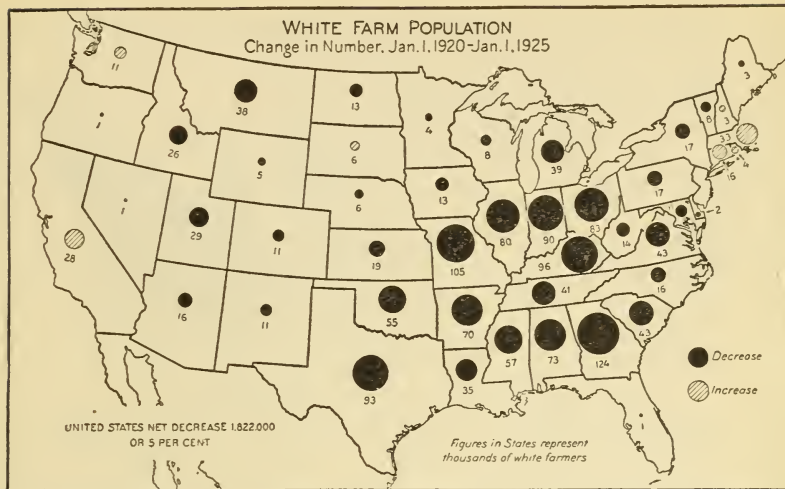


FIGURE 343.—The decrease in white farm population was greatest in the eastern Corn Belt, Missouri, Kentucky, and the Cotton Belt, excluding North Carolina. In these areas, or along their margins, industrial development was rapid during this period, and the high urban wages attracted many young men and women from the farms. In addition, the prices of most farm products were depressed, and farming was generally unprofitable. The decrease in farm population was much less in the dairy States, where agriculture suffered less severely. The increase in white farm population in southern New England and the Pacific Coast States included many "amphibian" farmers, as already noted; but in California and Washington most of the new farms, although located in almost suburban areas, are real farms producing fruits and vegetables for market.

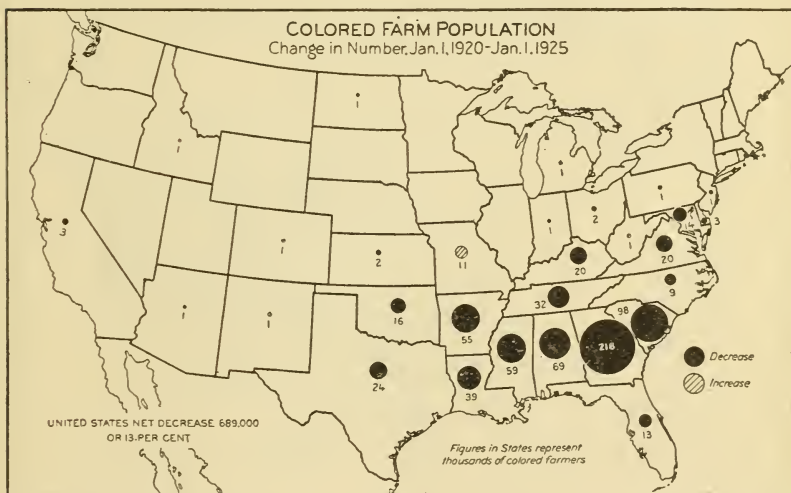


FIGURE 344.—The decrease in colored farm population was greatest in Georgia, where it amounted to 31 per cent. Every Southern State showed a decrease, the average for the States south of the Potomac and Ohio Rivers, and including Arkansas and Louisiana, being 17 per cent. A notable decrease occurred also in Maryland and Delaware. The cutting off of European immigrants during the World War and the quota limitations later caused a great demand for manual labor in the northern cities, and the high wages offered, together with the depressed condition of southern agriculture, resulted in the migration of over 700,000 colored people from southern farms. The movement was into southern cities as well as to the North. The increase in southeastern Missouri was owing to drainage, which increased considerably the acreage of available land.

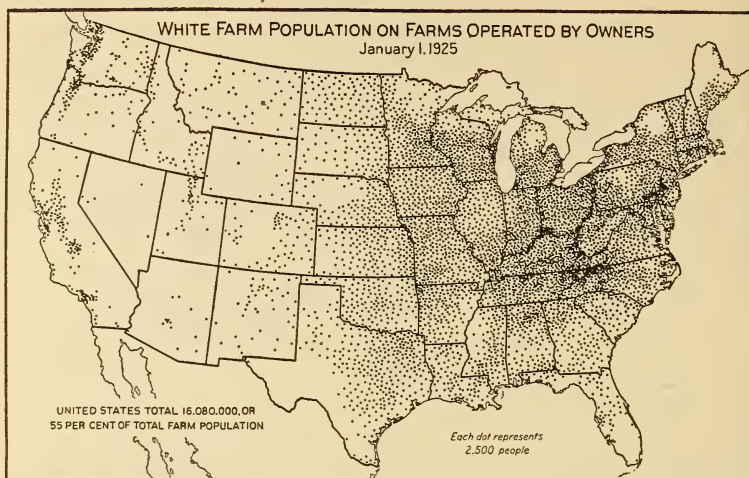


FIGURE 345.—White population on owner-operated farms is densest in the southern Appalachian region, the Ohio River Valley, southeastern Pennsylvania, Hartford County, Conn., western New York, and the Lake Michigan shore of Wisconsin. In the Cotton Belt and the prairie portion of the Corn Belt such population is sparse, because of the large proportion of farms operated by tenants, and in the prairie portion of the Corn Belt also because of the larger size of the farms than in the areas to the north, east, and south. Only a little over half of the farm population of the United States is white population on farms operated by owners

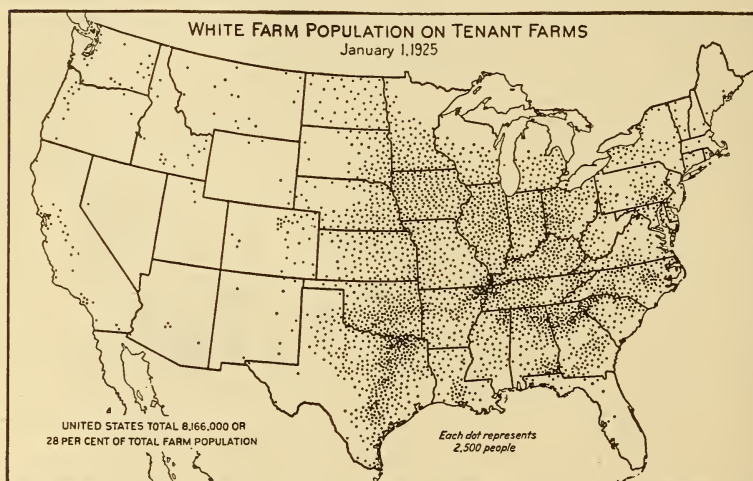


FIGURE 346.—White population on tenant farms is densest in the upper piedmont of South Carolina and Georgia, in the valleys of northern Alabama, in the upper Mississippi Delta of southeastern Missouri and northeastern Arkansas, and in the black prairie and adjacent counties of Texas. Less dense but notable is the distribution in southern Oklahoma outside the Ouachita Mountain district, in the Corn Belt, and in the tobacco districts of Kentucky, Tennessee, Virginia, and the Carolinas. Most of the tenant population of the United States resides where cotton, corn, or tobacco are the dominant crops



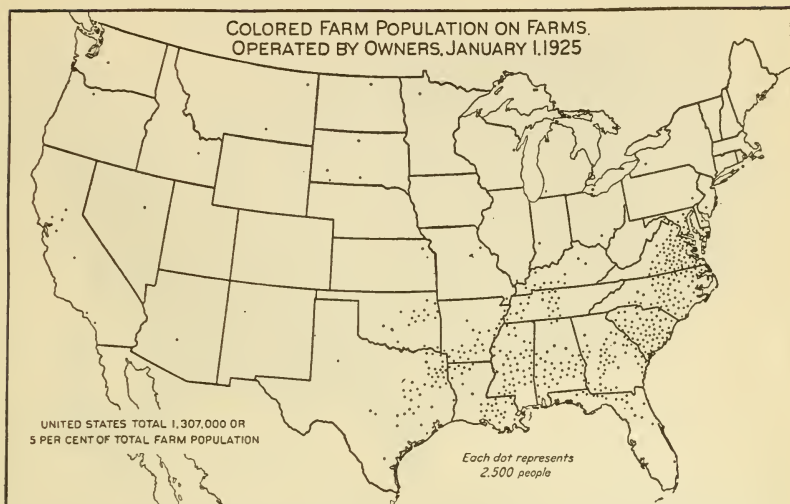


FIGURE 347.—Colored population on owner-operated farms is found mostly on the coastal plain and lower piedmont portions of the South. The extension of the area beyond the Cotton Belt is much greater than the area of colored tenant population, particularly in Virginia and Maryland, Kentucky, and central Tennessee. (Compare with fig. 348.) There is also more American Indian owner population than tenant population in the Dakotas and Rocky Mountain States, and more owner than tenant population of oriental ancestry in California. Colored population on farms operated by owners constitutes 5 per cent of the farm population of the United States

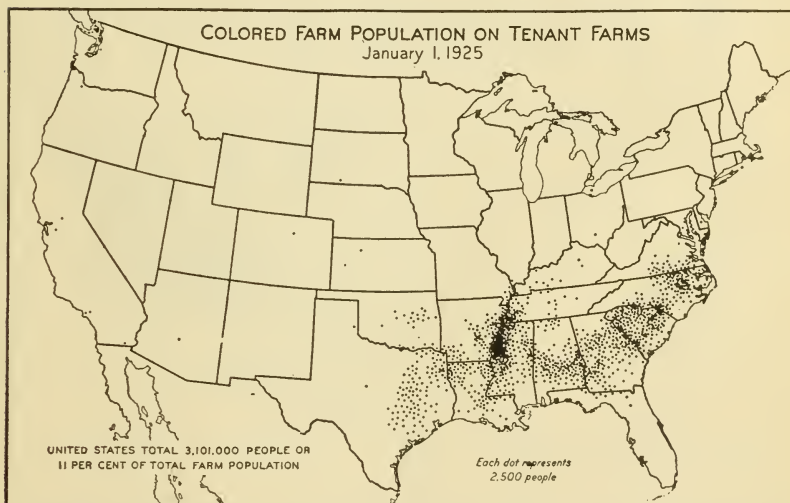


FIGURE 348.—Colored population on tenant farms is almost confined to the Cotton Belt. The Yazoo delta in Mississippi stands out clearly, and less distinct are the piedmont and upper coastal plain areas in the Carolinas, Georgia, and Alabama. (Compare with fig. 37.) In Texas colored tenant population extends only as far west as the black prairie. There are a few thousand people on colored tenant farms in the tobacco districts of Kentucky, Virginia, and the Carolinas. In the entire United States colored population on tenant farms constitutes 11 per cent of the total farm population

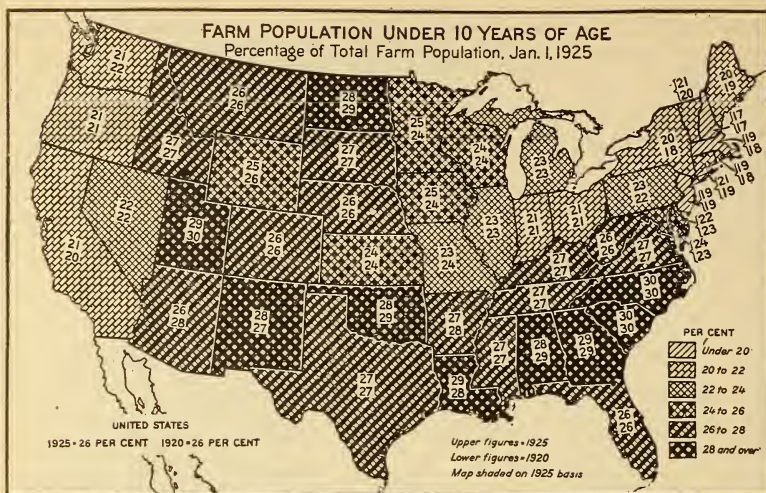


FIGURE 349.—The proportion of the farm population under 10 years of age ranges from 17 per cent in New Hampshire to 30 per cent in the Carolinas. It appears that the farm people of the South and of the Great Plains and Rocky Mountain regions are contributing 25 to 50 per cent more children proportionately to the Nation's need than are the farm people on the Pacific coast, the eastern Corn Belt, and the Northeastern States. In the case of the Great Plains and Rocky Mountain regions this greater contribution may be owing in part to a larger proportion of young married people in the population. The stationary ratio of children to adults since 1920 is largely attributable to the migration of many adults to the cities

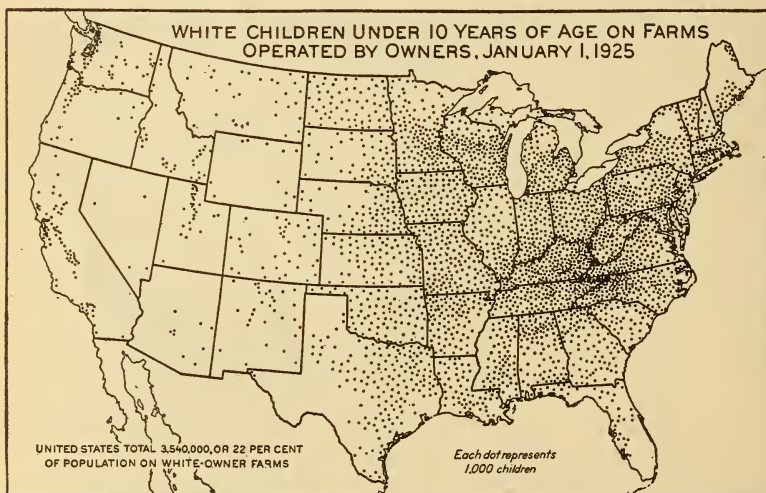


FIGURE 350.—The southern Appalachian Mountain region, where only 10 to 20 per cent of the land is in crops and yields are low, continues to produce a greater number of young people per square mile than any other farming region in the United States. For a century this region, with the piedmont on the east and the highland rim on the west, has been the Nation's nursery. Other areas where children are numerous, particularly those of owner farmers, are the Ohio Valley, southeastern Pennsylvania, western New York, and north-central Wisconsin. The sparse number of children on owner farms in central Illinois and Iowa and in the Cotton Belt is owing partly to the large number of tenant farms. (Fig. 351)

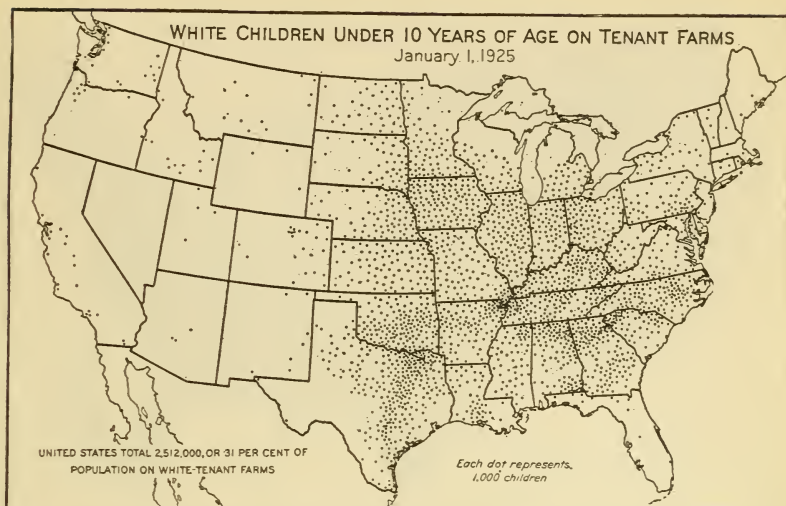


FIGURE 351.—Children on farms of white tenants are most numerous in the upper piedmont and mountain margin in South Carolina, Georgia, and Alabama, also in the upper Mississippi Delta and in the black prairie of Texas. Less numerous are the children of white tenants in the Corn Belt, and still less numerous are the white tenant's children in the corn and winter-wheat belt and the hay and dairy belt, principally because there are fewer tenants in these belts. The ratio of children to adults is nearly 50 per cent higher on white tenant than on white owner farms, doubtless ascribable largely to the fact that the owners average much older than tenants, and many of their children have left home

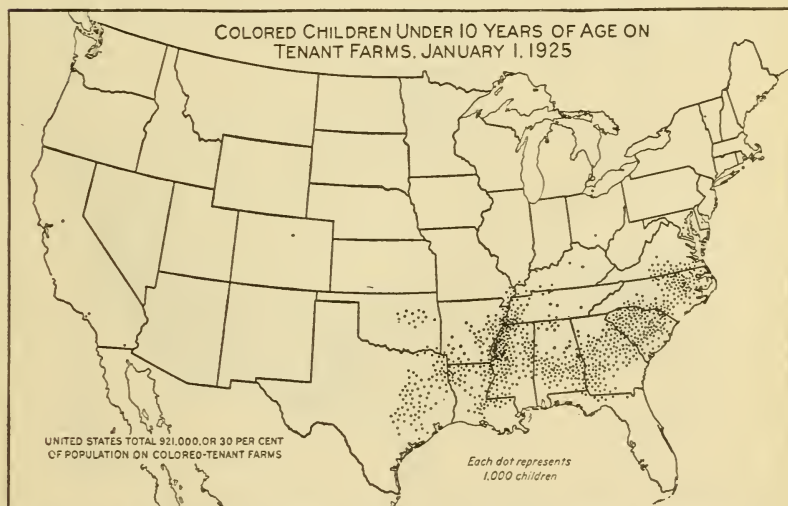


FIGURE 352.—Colored children on tenant and cropper farms are almost confined to the Cotton Belt, where most of such farms are found. There are a few thousand of these children outside the Cotton Belt in Virginia, Maryland, Kentucky, and Tennessee, and 4,000 or 5,000 in California. Most of these children in California, however, are of Japanese ancestry. It should be noted that the ratio of children to total colored tenant population in the United States is practically the same as among the white tenant population. (Fig. 351)



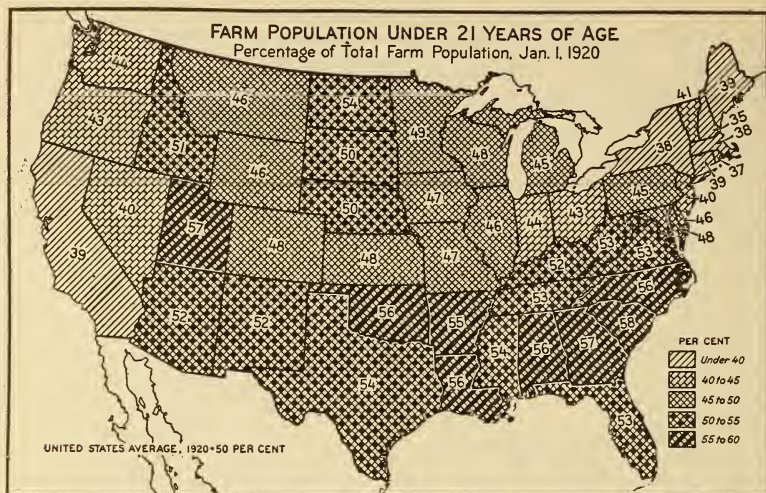


FIGURE 353.—The proportion of the farm population under 21 years of age, and more or less dependent on their elders for support, varies widely in the United States. In New England, excluding Vermont, less than 40 per cent of the farm population was under 21 years of age in 1925, whereas in Utah, Georgia, and South Carolina it was 57 or 58 per cent. Roughly three farm people had to support two minors in California and New England, whereas only a little over two farm people had to support nearly three minors in Utah and the Southeastern States. The burden of dependence, therefore, was twice as great in the latter States. From Illinois to Colorado and north about half the farm population are supporting the other half

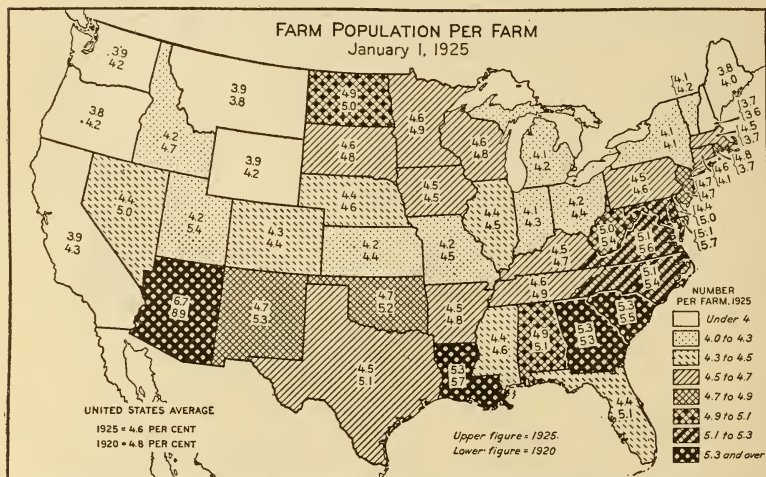


FIGURE 354.—In the South Atlantic States the average farm, including each cropper holding in a plantation as a separate farm, had over five people on January 1, 1925. This is true also in Louisiana, where there are many large sugar plantations worked by wage hands, and in Arizona, where there are a few large cattle ranches and cotton farms. On the other hand, in the North-eastern States there were only 3.7 to 4.7 persons per farm, including hired laborers, and in several far Western States only 3.9 persons. In almost every State the average number of persons per farm decreased between 1920 and 1925. The average decrease for the United States was from 4.8 to 4.6

## ROADS

Probably no single factor has affected American agriculture more profoundly during the last decade than the combination of the automobile and the building of good roads. This development has reduced the number of horses and released many million acres of land for meat and milk production, thereby inducing vast geographic shifts in the growing of crops and the raising of farm animals. The good roads have increased taxation, have probably raised the standard of living and have increased the efficiency of farmers and made them more responsive to new ideas and methods. It is interesting, therefore, to observe the geographic distribution of farmers living on improved roads.

The demand for hard-surface roads has been met in different ways in different localities. The building of concrete or brick roads, the most expensive form of construction, by 1925 had provided only 2.5 per cent of the farmers with such a road all the way to their farms; that is, only this percentage of all farms were located on concrete or brick roads. This form of construction is most common in the densely populated, industrial, and wealthy States north of the Potomac and Ohio Rivers, and in North Carolina and California. Macadam roads provided 5 per cent of the farmers of the United States with year-round service, but in the bluegrass district of Kentucky and in northwestern Ohio nearly 50 per cent of the farms were located on such roads. Gravel roads adjoined 15 per cent of the farms of the United States, but about 50 per cent of the farmers of southwestern Ohio and central Indiana lived on such roads.

In all, therefore, about a fourth of the farms in the Nation were provided on January 1, 1925, with hard-surfaced roads all the way to town. But in New England, New York, Michigan, Wisconsin, and California a third to a half of the farms adjoin hard-surface roads, and in Ohio, Indiana, Oregon, and Washington over half of the farms are so located.

Improved dirt roads adjoined 31 per cent of the farms and unimproved dirt roads 43 per cent of the farms. About three-fourths of the farmers, therefore, were still living on roads that commonly become well-nigh impassable for automobiles in early spring and occasionally at other times of the year. In the Great Plains States about 95 per cent of the farmers lived on dirt roads. But doubtless many of these farmers had hard-surface roads part of the way to town.

A new development deserves notice. Automobiles and good roads have made it possible for many factory workers, and professional and business men, in the cities, to live on a small place a few miles out of the city, have a garden, keep a cow and some chickens, and thus supply a material proportion of the family need for food. Many such places produce over \$250 worth of products and thus meet the census requirement for enumeration as a farm. These "amphibian" farmers have been increasing in numbers more rapidly than is commonly realized. Between 1920 and 1925 the census revealed an increase of 35 per cent in farms of 3 to 10 acres, and of 16 per cent in farms of 10 to 20 acres. On the other hand, the farms of all the larger-size groups decreased in number. The automobile has, apparently, increased the number of small farms more rapidly than the tractor has increased the number of large farms.



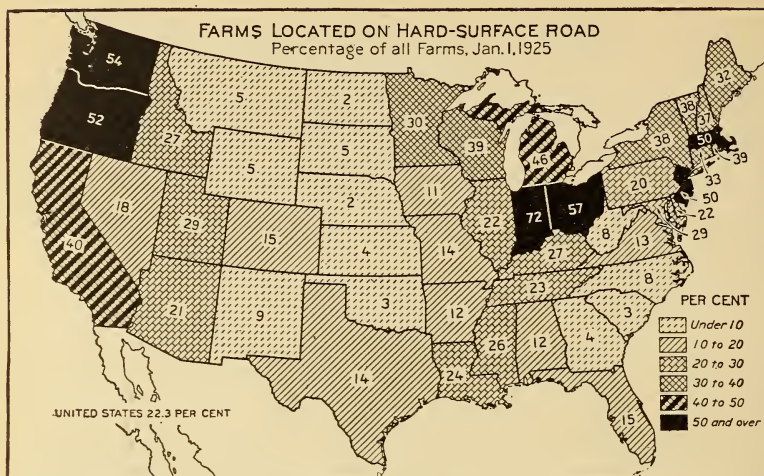


FIGURE 355.—The proportion of the farms adjoining hard-surface roads varies greatly in different portions of the United States. In Massachusetts, Ohio, Indiana, Oregon, and Washington 50 per cent or more of the farms were provided with such roads in 1925, but in most of the Great Plains region less than 5 per cent. In the region north of the Ohio and Potomac Rivers from one-fourth to one-half of the farms are located on hard-surface roads. The quality of these roads varies greatly, however. In the lower Lakes region, Maryland, North Carolina, and California many farms are provided with concrete or brick roads, while in western Ohio, Indiana, Michigan, Minnesota, and parts of Kentucky, Tennessee, and Mississippi macadam or gravel roads are characteristic.

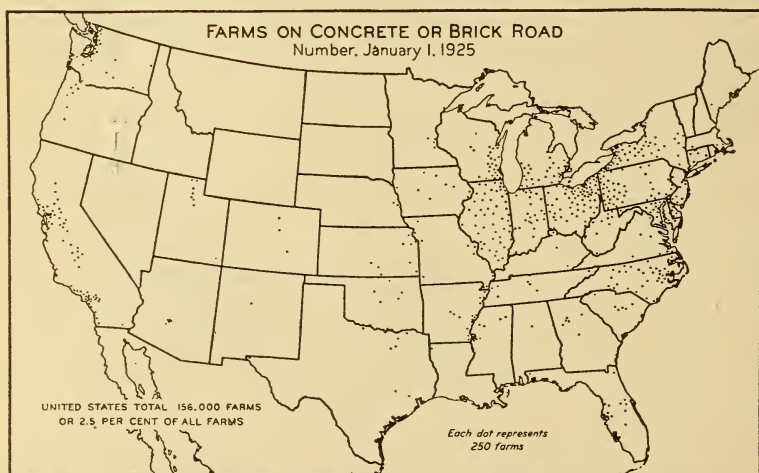


FIGURE 356.—The construction of concrete or brick roads has evidently advanced farthest in the industrial area that extends from Massachusetts to Maryland and westward to Wisconsin and Illinois. Outside this area concrete roads are most common in North Carolina and California, in which States industry is also developing rapidly. In Massachusetts and North Carolina about 3 per cent of the farms adjoined a concrete or brick road in 1925, in New York and Ohio about 7 per cent, in Illinois 6 per cent, and in California 11 per cent. In the Dakotas, on the other hand, there were only 19 farms on concrete roads, out of 155,000. In the entire United States there were 156,000 farms located on concrete or brick roads, which was 2.5 per cent of all farms.



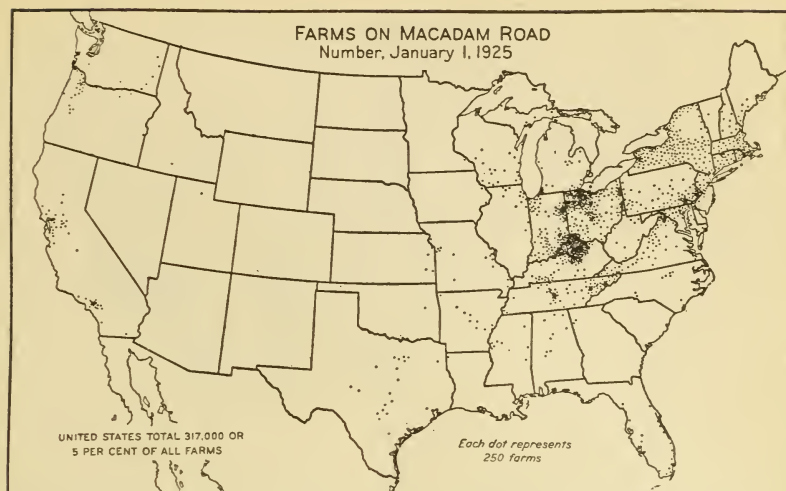


FIGURE 357.—A half or more of the farms in the bluegrass district of Kentucky and in northwestern Ohio adjoin a macadam road. In these districts limestone for crushing is available near the surface almost everywhere. The macadam type of road construction is common also in New York, in southern New England, in southeastern and southwestern Pennsylvania, in the valley of Virginia and of eastern Tennessee (another limestone area), and in the Nashville Basin of central Tennessee. Several thousand farms are located on macadam roads in the valleys of California and of western Oregon. In the United States as a whole 317,000 farms in 1925, which was 5 per cent of all farms, adjoined macadam roads

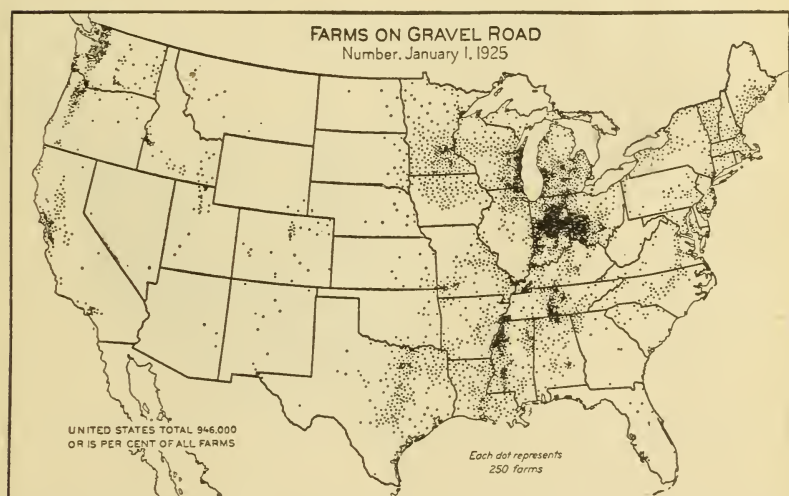


FIGURE 358.—Many more farms are located on gravel than on concrete or macadam roads—15 per cent of all farms in the Nation—doubtless in part because gravel is a cheaper form of material. A half or more of the farms in southwestern Ohio and central Indiana adjoin gravel roads, and the proportion is almost as high in the northern portion of the Yazoo delta in Mississippi, in several counties of central Tennessee, in eastern Wisconsin, and in parts of southern Michigan. Gravel is also a common road material in Minnesota, New England, in the lower piedmont of Virginia and the Carolinas, in Alabama, Mississippi, Louisiana, in the black prairie of Texas, and in the valleys of the Pacific Coast States

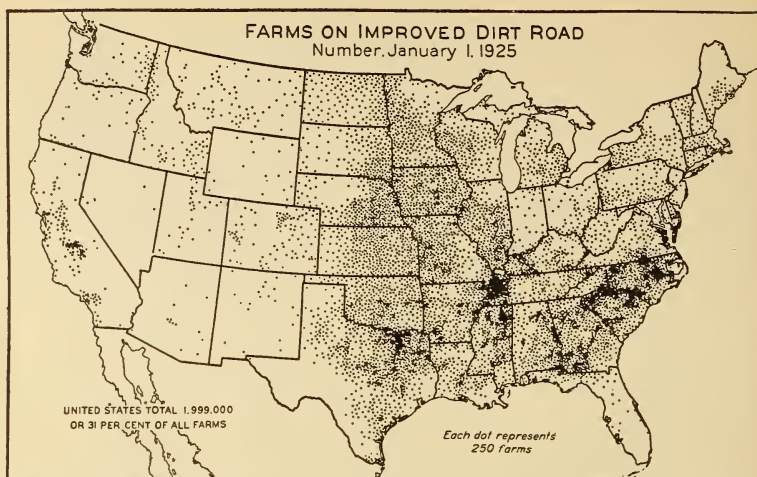


FIGURE 359.—More farms adjoin improved (graded) dirt roads in the South than in the North, partly because there are more farms (including cropper holdings) in the South and partly because there is a much smaller mileage of hard-surface road. (Figs. 356, 357, and 358.) A half or more of the farms adjoin improved dirt roads in several counties of the upper coastal plain of the Carolinas and Georgia, northeastern Mississippi, and western Tennessee, also in the upper piedmont and in northeastern Texas. Improved dirt road is the common kind in most of the prairie region, extending from Illinois westward to Oklahoma, Kansas, and North Dakota. Nearly a third of the farms of the United States are located on improved dirt roads

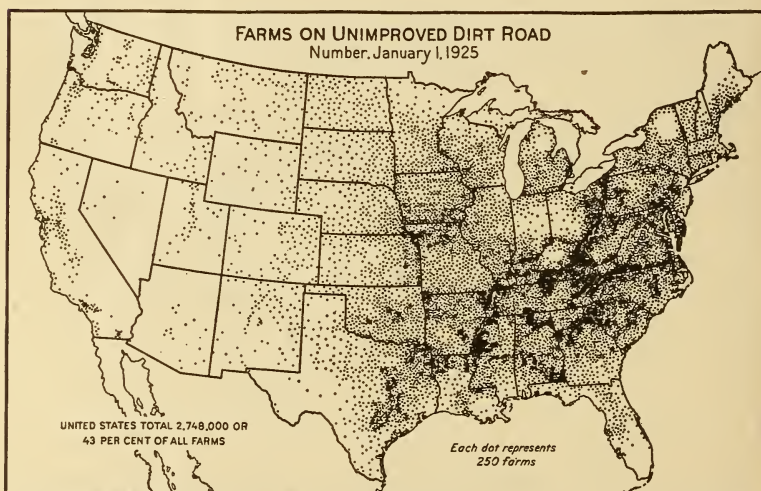


FIGURE 360.—Over two-fifths of the farms of the United States in 1925 were located on unimproved dirt roads. In New York, Pennsylvania, and New Jersey and in the South Atlantic States over half the farms were on such roads. Many of these farms are in districts that have rather poor soils or rough land surface, notably the upper Ohio Valley, eastern Kentucky, and the upper piedmont of Georgia and the Carolinas; but in other districts the soils are good, particularly in several counties of southeastern Pennsylvania. Note that in western Ohio, central Indiana, and the bluegrass district of Kentucky nearly every farm has been provided with a hard-surface road. (Figs. 356-358)

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